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Verfasser

Alois Engl

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Sebastien Walter Hässlich

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Table of contents

List of figures

List of tables

Acronyms and Abbreviations

ATX	Austrian Traded Index
Aut	Austria
CAC 40	French Stock Index
CDS	Credit Default Swap
CNN	Cable News Network
CR	Credit Ratings
Ctry	Country
DAX	Deutscher Aktien-Index (German Stock Index)
EC	European Commission
ECB	European Central Bank
EFSF	European Financial Stability Facility
EN	Economic News
ESM	European Stabilization Mechanism
EU	European Union
Fra	France
GDP	Gross Domestic Product
Ger	Germany
Gre	Greece
Hun	Hungary
IA	International Agreement
IBEX-35	Índice Bursatil Español (Spanish Stock Index)
IMF	International Monetary Fund
Ire	Ireland
MIB30	Milano Italia Borsa (Italian Stock Index)
MP	Monetary Policy
NAMA	National Asset Management Agency
ND	Nea Dimokratia (New Democracy)
NN	No News
PN	Political News
Por	Portugal
PSI-20	Portuguese Stock Index
S&P	Standard & Poor’s

Sk	Slovakia
USA	United States of America
WSJ	Wall Street Journal

Abstract (English)

Our thesis is dealing with changes in the stock markets in Europe during the European Sovereign debt crisis from the 1st of January 2010 to the 31st of November 2011. We ask which types of news influence the stock markets and whether the origin of this news matters. We therefore consider the top 20 movements of the stock exchanges of the Euro zone countries and relate these using regression analysis to the type of the news, its nature (if it is good or bad) and its origin. The seminal study using this approach was published in 1998 by Graciela L. Kaminsky and Sergio L. Schmuckler “What triggers market jitters? “A chronicle of the Asia Crisis”. Their focus lay on the Asian crisis. We apply their method on European stock markets during the European government debt crisis since this approach was not as yet done.

We give a short overview of the budget situation of these countries and try to sketch how the solution for this crisis could look like.

Our main results are that political news have a great influence and that in general bad news lead to higher swings on the stock exchange markets. Domestic news dominates for political news, economic news and monetary policy. Also there is no difference if the news are originated in a crisis state or a non-crisis state.

Abstract (German)

Diese Diplomarbeit beschäftigt sich mit den Veränderungen der europäischen Aktienmärkte während der europäischen Schuldenkrise.
Unsere Fragestellung ist, welche Arten von Nachrichten die ausgewählten Leitindizes der Länder beeinflussen und ob die Herkunft der Nachrichten eine Rolle spielt. Um die Menge der Daten für die Regressionsanalyse einzuschränken wählten wir die 20 größten täglichen Veränderungen an den Börsen aus und testeten diese mit Hilfe einer Regressionsanalyse auf Unterschiede in Bezug auf Art der Nachrichten, Herkunft der Nachrichten beziehungsweise negative versus positive Nachrichten.
Die Arbeit von Graciela L. Kaminsky und Sergio L. Schmuckler “What triggers market jitters? “A chronicle of the Asia Crisis” diente uns als Ideengeber für diese Magisterarbeit. Sie analysierten den Einfluss von Nachrichtenmeldungen auf die asiatischen Börsen während der Asienkrise Ende der 90er Jahre. Da noch keine vergleichbare Studie zur Analyse der Nachrichten während der europäischen Schuldenkrise gemacht wurde, griffen wir dieses Thema auf.
Als Einführung in diese Thematik gehen wir auf vorhandene Literatur ein und zeigen deren Vor- beziehungsweise Nachteile auf. Danach folgt eine Zusammenfassung der Haushaltslage und wirtschaftlichen Entwicklung der Euroländer und Lösungsansätze aus der Schuldenkrise.
Die Ergebnisse unserer Regressionsanalyse besagen, dass der Einfluss der politischen Nachrichten am größten ist und dass schlechte Nachrichten die Aktienindizes stärker als gute beeinflussen. Außerdem stellte sich heraus dass es keinen Unterschied macht ob der Ursprung der Nachrichten von einem krisengebeutelten Land kam oder nicht.

Chapter 1

1.1. Introduction

The main topic that has dominated the media landscape – as well as our social life – over the last two years has been the debt crisis (especially the one of Greece) in Europe. As in every crisis, questions relating to the origin of the crisis and the behavior of the investors began to emerge.

The different types of theories dealing with these questions are discussed in our thesis, but we will not restrict our work to one particular model of herding or fundamental behavior of investors – the aim of this thesis is to look at the reaction (positive as negative) of financial stock markets, no matter if it is just a rumor or if fundamental data is responsible for it.

The problem that we consider is what type of news is responsible for large swings in the stock exchange. Where do these news have their origin? Does it matter if their nature is bad or good? Does it make a difference if the news originated in a crisis country?

We think that these are important questions to solve as it makes it more clear to what news investors tend to listen more during times of crisis.

The seminal study of this kind was done by Graciela L. Kaminsky and Sergio L. Schmuckler, What Triggers Market Jitters? (July 1998)[1]. In general they were analyzing the Asian crisis from the 1st of January 1997 until the end of May 1998 by picking out nine Asian stock markets that were affected by this crisis. To limit the vast amount of information they had available they concentrated on the twenty largest one-day changes (at a bearish or bullish market).

In our work we also examine the top twenty largest one-day changes of the most important stock indices of the Euro- zone as this was not done before in any other paper. Therefore we have picked the countries that were mostly in the focus of the debt crisis: Austria, Germany, Greece, Portugal, Ireland, Italy, Spain and France.

We find it important to do this to better understand how the news and international agreements influence the stock exchanges. One of our main results is that political stability is extremely important during crisis times. So politicians can show how good their leadership ability is and soften the swings on the stock exchange.

[1] The first version of this paper was in July 1998, but we are using an updated version from March 1999

Following this introduction we will make a review of the literature dealing also with the analysis of news. Then in chapter 2 we will give a summary of the European sovereign debt crisis – analyzing the financial situation of the countries and looking at the measurements and stabilization instruments of the European Union and other organizations. Chapter 3 deals with financial markets during a crisis – we will compare the volatility and means of stock indices during a crisis period and a non-crisis period. After that (Chapter 4) we show our news in detail and how the data for the regression was prepared. There will also be some analysis of the different type of news and their origin. In chapter 5 we will run our regressions and analyze the results, while in the last chapter (Chapter 6) we will conclude.

1.2. Review of the literature

Hardly anyone can forecast the prices of the stock markets. Market performances are not entirely data driven. Only in a few cases is there a face-to-face transaction between the producer and the consumer[2]. In general you can say that industry performance, economic and political changes, inflation and trading strategies are the key factors of changing stock prices. A lot of papers have been written, dealing with the influence of quantitative information on stock market prices. For example the works done by Rohitha Goonatilake and Susantha Herath[3] (they analyzed statistically the influence of news on the most important stocks indices in the US and found a connection between news items and the markets), Douglas K. Pearce and V. Vance Roley[4] (they looked at how news regarding money supply, inflation, real economic activity and the discount rate affect the prices of the stocks), R. P. Castanias[5] (he found out that the volatility of stock markets gets higher on days with the most economic news), Werner Antweiler and Murray Z. Frank[6] (their paper is

[2] Sernau Scott, (2006). Worlds Apart: Social Inequality in a Global Economy, Second Edition, pp.40
[3] Goonatilake Rohitha, Herath S., (2007). The Volatility of the Stock Market and News, *International Research Journal of Finance and Economics,* Issue 11
[4] Pearce Douglas K., Roley V. Vance, (1985). Stock Prices and Economic News, *Journal of Business,* Vol. 58, No. 1, (January 1985), pp. 49-67
[5] Castanias R.P., (1979). Macroinformation and the variability of stock market prices, *Journal of Finance,* Vol.34, pp. 439-450
[6] Antweiler Werner, Murray Z. Frank, (2004). Is All That Talk Just Noise? The Information Content of Internet Stock Message Boards, *The Journal of Finance,* Vol. 59, Issue 3, pp. 1259–1294, June 2004

dealing with news on internet stock message boards and how they affect the stock market), G. William Schwert[7] (he showed that a higher volatility in times of a crisis can be explained by a greater variance of other economic data).
One of the initial points, when researchers started to try to understand the movements of the stock markets was Keynes' work in the late 1930s where he described the phenomena of ”animal spirits”[8]. Generally he is measuring emotions that influence human behavior in terms of consumer confidence.

> *“Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than mathematical expectations, whether moral or hedonistic or economic. Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as the result of animal spirits - a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities.”*[9]

Since then attention has been drawn to observe the dynamic effects that news and rumors and not just fundamental data have on stock prices. At that time one of the most innovative and influential works was done by Victor Niederhoffer (1971)[10]. It was the first work of this kind that showed that news related to world events[11] affects movements of the stock market[12].

Richard Roll (1988) also dealt with the problem of predicting stock prices in his work[13]. He is clear about the fact that in general stock prices cannot be predicted and that the theory of efficient markets explains why they should be unpredictable (more

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[7] Schwert G. William, (1989). Why does Stock Volatility Change over Time?, *Journal of Finance,* Vol. 44 pp. 1115-1153
[8] Keynes John M., (1936). The General Theory of Employment Interest and Money, London. Macmillan.
[9] Keynes John M., (1936). The General Theory of Employment Interest and Money, London. Macmillan. pp. 161-162
[10] Niederhoffer Victor, (1971). The Analysis of World Events and Stock Prices, *The Journal of Business,* Vol. 44, No. 2, pp. 193-219
[11] Niederhoffer declared as world news headlines in the New York Times that have a certain font size and their reliability. Also he installed a seven point good to bad scale to analyse the impact of the events he found.
[12] For his work he was using the S&P 500
[13] Roll Richard, (1988). R-Squared, *Journal of Finance*, Vol. 43, No. 2, pp. 541-566

about this later on). Nevertheless many financial economists[14][15][16] seem to believe that with authenticated information you can illustrate stock price movements ex post. If you can generate a model that perfectly fits the data you can follow that R-squared[17] has to be near 1 – this should also be the case for R-squared in Roll's regression[18]. Roll looked into the largest firms of the US market and came to the conclusion that less than 40 percent of the monthly volatility can be explained like that. His results got worse when he was using daily return data.

Cutler, et al. (1989)[19] found similar results. They also looked at some distinctive world news and how the stock markets react to them and they came to the conclusion – accordingly to Roll – that it is hard to find news responsible for the market's biggest swings.

The importance of news data on the stock's prices can also be seen in numerous other recently published papers (like Pietro Veronesi [2000][20], Long Chen, Zhi Da and Xinlei Shelly Zhao [2012][21], Clara Vega [2006][22], X. Frank Zhang [2006][23], John Y. Campbell, Christopher Polk and Tuomo Vuolteenaho [2009][24] and also in the fact that in nearly every economic newspaper trends and volatility of stocks are examined:

"One of the more fascinating sections of the Wall Street Journal (WSJ) is on the inside of the back page under the standing headline "Abreast of the Market." There you can read each day what the market did yesterday, whether it went up, down or sideways as measured by indexes like the Dow Jones Industrial Average . . . . In that

[14] Ashbaugh-Skaife et al., (2006). The effects of corporate governance on firms' credit ratings, *Journal of Accounting and Economics,* Vol. 42, pp. 203-243

[15] Blackwell, Marr Wayne, Spivey Michael F., (1990). Plant-Closing Decisions and the Market Value of the Firm, *Journal of Financial Economics,* Vol. 26, No. 2, pp. 277-288

[16] Krishnaswami Sudha, Subramaniam Venkat, (1999). Information asymmetry, valuation and the corporate spin-off decisions, *Journal of Financial Economics*, Vol. 53, pp. 73-112

[17] R-squared shows if the regression line is near or far away from the points of a data set. If the R-squared is 1.0 then the regression line perfectly matches the data.

[18] He uses a cross – sectional distribution of R-squared.

[19] Cutler D.M., Poterba J.M., Summers L.H., (1989). What moves stock prices?, *Journal of Finance*, Vol. 25, pp. 383-417

[20] Veronesi Pietro, (2000). How Does Information Quality Affect Stock Returns?, *The Journal of Finance,* Vol. 55, No. 2, April 2000

[21] Long Chen, Xinlei Shelly Zhao, Zhi Da, (2012). What Drives Stock Price Movement?;

[22] Clara Vega, (2006). Stock price reaction to public and private information, *Journal of Financial Economics*, Vol. 82, pp. 103-133

[23] Zhang X. Frank, (2006). Information Uncertainty and Stock Returns, *The Journal of Finance,* Vol. 61, No.1, February 2006

[24] Campbell John Y., Polk Christopher, Vouteenaho Tuomo, (2009). Growth or Glamour? Fundamentals and Systematic Risk in Stock Returns

column, you can also read selected post-mortems from explaining why the market yesterday did whatever it did, sometimes with predictive nuggets about what it will do today or tomorrow. This is where the fascination lies. For no matter what the market did—up, down or sideways—somebody will have a ready explanation."[25]

The above mentioned column "Abreast of the Media" from the Wall Street Journal was used by Tetlock (2007)[26] to describe the correlation between the content of media reports and daily stock market activity. The reason for picking this source is that the Wall Street Journal is the biggest daily financial newspaper in the United States with a very high reputation among traders. With the help of General Inquirer, a computer assisted approach for content analysis of textual data, he examined the data from the Dow Jones Index between the years 1984 and 1999. This software labels each text file with counts on categories from a dictionary database. Words that are associated with pessimism are in the negative or weak category. When he found a bunch of such pessimistic news the market went down. This kind of work was somehow the beginning of the analysis of the so called ad – hoc news[27]. More and more funds manager that are doing algorithmic trading not just concentrate on trend following but they also implement analyzing the ad hoc news in their formula.

The general question in finance that economics has been asking is why prices change in security markets. Therefore in 1970 Eugene Fama published in the Journal of Finance an influential article "Efficient Capital Markets"[28] dealing with the efficient market hypothesis. This theory says that prices in the stocks market fully reflect all available information – so that it is not possible to earn more profits than the average market.

This statement is quite debatable because traders or investors are picking a stock that is in their opinion undervalued compared to other stocks and in trading them they are going to make their profit. Also fund managers are always compared to a certain benchmark (for example a fund dealing with stocks in the German market – they are compared with the performance of the DAX) and DAX certainly have to outperform it

[25] Vermont Royster (Wall Street Journal, "Thinking Things Over Abaft of the Market", January 15, 1986
[26] Tetlock Paul C., (2007). Giving Content to Investor Sentiment: The Role of Media in the Stock Market, *The Journal of finance*, vol. 62, no. 3 june 2007
[27] Ad hoc news are news that have to be published by companies that are listed at a stock exchange if there is any new information that could be important for that company
[28] Fama Eugene F., (1970). Efficient Capital Markets: A Review of Theory and Empirical Work, *The Journal of finance*, Vol. 25, No. 2, pp. 383-417

which stands in contrast to the efficient market hypothesis, that it is impossible to predictably outperform the market. The main reason for price changes is the upcoming of news, respectively new information. Following this a market can be called efficient if the prices adjust quickly, so current prices of securities show all available information at any time which means that the prices adjust before an investor has time to benefit from a news release.

So how could it be explained that nowadays markets are nevertheless efficient? One of the reasons is that investors and traders are competing against each other in identifying over- or undervalued stock prices. Thus these people are spending a lot of time and resources to discover “wrongly” priced stocks. As more and more traders are looking for such opportunities to invest, the number detecting it becomes quite small.

Trying to summarize the efficient market hypothesis in one sentence you could use the famous trading quote: “The market is always right“. All stocks in an efficient market are “rightly” priced.

Chapter 2

2.1. The European debt crisis

What we do now is give a short overview of how the crisis started, looking at some countries in particular and summarize the function of the aid mechanism of the European Union and IMF.
The center of this crisis is Greece, a country which was and still is near bankruptcy. You cannot name a clear date when the crisis started but roughly you can say that it set in at the beginning of the year 2010 with the disclosure of Greece's actual deficit and its excessive financial leverage. The inevitable consequence of the massive deficit spending was presented in the form of increased interest rates on government bonds. As shown in the following tables not only Greece had to suffer under high deficit spending. The consequence was a contagion effect of many Euro zone countries, which already had an excessive level of debt (Ireland, Portugal, Spain and Italy). With the support of the IMF (International Monetary Fund) and the ESM (European Stabilization Mechanism), so-called rescue packages have been established, in order to avoid national insolvency of certain countries.

2.2. The financial situation of the eight sample countries

In order to be a member of the Euro-zone a country has to fulfill special convergence criteria – the so called Maastricht criteria. Two major points are that the deficit each year should not be higher than 3 percent of GDP and that the total deficit should not exceed 60 percent of GDP. Looking at tables 2.1, 2.2 and 2.3 you see the deficit, the debt level and the growth rate of GDP for each country in the sample in certain years.

Table 2.1: National Government Budgets (in percent of GDP)

* estimation

Country	2010	2011	2012*	2013*
Austria	-4,5	-2,6	-3	-1,9
France	-7,1	-5,2	-4,5	-4,2
Germany	-4,3	-1	-0,9	-0,7
Greece	-10,3	-9,1	-7,3	-8,4
Ireland	-31,2	-13,1	-8,3	-7,5
Italy	-4,6	-3,9	-2	-1,1
Portugal	-9,8	-4,2	-4,7	-3,1
Spain	-9,3	-8,5	-6,4	-6,3

Source: European Commission

Table 2.2: National Government Debt Levels (in percent of GDP)

* estimation

Country	2010	2011	2012*	2013*
Austria	62,9	65,2	70,1	73
France	82,3	85,8	90,5	92,5
Germany	83	81,2	82,2	80,7
Greece	145	165,3	160,6	168
Ireland	92,5	108,2	116,1	120,2
Italy	118,6	120,1	123,5	121,8
Portugal	93,3	107,8	113,9	117,1
Spain	61,2	68,5	80,9	87

Source: European Commission

Table 2.3: National Economic Growth (in percent of GDP)

* estimation

Country	2010	2011	2012*	2013*
Austria	2,3	3,1	0,8	1,7
France	1,5	1,7	0,5	1,3
Germany	3,7	3	0,7	1,7
Greece	-3,5	-6,9	-4,7	0
Ireland	-0,4	0,7	0,5	1,9
Italy	1,8	0,4	-1,4	0,4
Portugal	1,4	-1,6	-3,3	0,3
Spain	-0,1	0,7	-1,8	-0,3

Source: European Commission

France, Greece, Ireland and Spain have quite a high budget deficit and the forecasts are saying that they will continue to stay at such a level. Looking at the debt level Greece is by far on top of the list with 168 percent. Germany is the only country that (if the forecasts come true) will remain with its level around 80 percent (which is still higher than the convergence criteria of 60 percent). According to this forecast of the European Commission the economy in these countries will more or less start in the year 2013 to come out of recession or their low growth period.

When you are looking at this data it is clear that the premium against a country's bailout – Credit Default Swap (CDS)[29] – gets higher.
Now let's take a look how this situation had happened in these countries:

[29] This is a financial instrument for trading credit risks between two parties. One side (the buyer) of a credit default swap gets a credit protection where else the other side (the seller) ensures the credit value of the debt securities.

2.2.1. Ireland

In 2007 the deficit of Ireland was around 25 percent of GDP. In 2009 it reached the mark of €180 billion, meaning 65.8 percent of its GDP – exceeding the convergence criteria (which is at 60 percent).

If you are comparing the budget situation for these two years you see that in 2007 there was still a surplus of 0.3 percent, which deteriorated to a deficit of 12.5 percent of GDP in 2009. In the context of the world recession the housing bubble in Ireland blew up and Ireland's economy was one of the first nations to head towards a recession in 2008. The case of Ireland got worse as Ireland also suffered a lot under the bank crisis (with a focus on the Anglo Irish Bank). On the 21st of November 2010 the prime minster Brian Cowen asked the IMF (International Monetary Fund) and the European Union for financial support. At a special meeting of the Euro-group and the finance ministers of the European Union at the 27th to 28th of November in Brussels, Ireland was granted a credit worth of €85 billion over 36 months. The credit should be given to Ireland in quarterly rates, as the European Union and the IMF combined the credit with certain conditions of reducing the deficit of Ireland's household. One of the points would have also been to higher the country's low corporate tax rate but the government intervened successfully against it. According to the calculation of the IMF the record deficit of 32 percent of GDP for the year 2010 should shrink to around 10 percent of GDP in the year 2011.

2.2.2. Italy

The case of Italy is somehow different. The country always had a high total deficit relative to its GDP. In 2004 the deficit was at 106 percent, which was the highest in the European Union. It was a bit reduced to 103.5 percent of GDP in 2007, but in 2009 it got a significant boost to a level of 114.6 percent. The Italian government tried to avoid more deficits and managed to get some positive results with modest increases of the total deficit to 117 percent of GDP in 2010 and 118 percent of the GDP in 2011. Nevertheless after Greece, the debt-GDP ratio is the second highest in the Eurozone. The advantage is that concerning UniCredit[30] only 42 percent of Italian

[30] an Italian bank

debt is held by foreigners whereas more than three quarters of Greek debts are held by foreign investors. The average level of debt of the Italian households is at 57 percent of the available income (compared to an average of 93 percent in the Eurozone).

Also the Italian government really tried hard to battle its new indebtedness. At the end of May 2010 an austerity measure of €24 billion was enacted. The Prime Minister Silvio Berlusconi wanted to reduce the yearly deficit under the convergence criteria of 3 percent of the GDP per year until 2012. As the European crisis started to deepen he still tried to maintain his goal and announced other austerity measures. At the 14th of September this new household plan was approved by the Italian parliament. This new plan includes a rise of value added tax by 1 percent to 21 percent and a break on debts as already implemented in Germany[31] with the goal of a balanced household by 2013. In spite of trying to cut its deficit the rating agency Standard & Poor's (S&P) downgraded Italy from A+ to A with a negative outlook. At the G 20 summit in October in Cannes, Italy asked the IMF as a confidence building measure to send experts to the country to control its efforts in reducing its GDP deficit.

Due to the difficulty in implementing the new household plan, Italy's prime minister had to resign and on the 16th of November 2011. Mario Monti became the new prime and also the finance minister of Italy. His cabinet consists of ministers independent of any party only. Monti also tries to keep Italy on the road of strict deficit spending and getting a balanced household in the year 2014.

2.2.3. Portugal

In the year 2008 Portugal had a deficit of 66.3 percent of its GDP. This number increased spectacularly during the recession in the following year to 77.5 percent of GDP. On the 24th of March the international rating agency Fitch downgraded the long term credibility of Portugal stating as a reason that the country has a high level of debt and a negative outlook in bettering its situation. The new rating was set at AA-. The Portuguese government were outraged that they were already being compared with Greece. To prevent the risk of another downgrading, the government decided to establish a huge austerity program with the goal of minimizing the record household

[31] the so called " Schuldenbremse"

deficit of 2010 from 9.3 percent of GDP to around 3 percent in the year 2013. This program should increase taxes, while the salaries of employees in the public sector should be cut. But the government failed to pass this austerity program and Prime Minister José Sócrates resigned from his job. These turbulences in the Portuguese government lead to another downgrading of Standard & Poor's to BBB- and of Moody's to BAA1 at the end of March / beginning of April 2011.

On the 20th of May 2011 the IMF granted Portugal an aid package of €26 billion demanding that Portugal enforces its effort in getting a balanced budget. But on the 5th of July the rating agency Moody's downgraded the country again to BA2 level which is non-investment grade – speculative. But there are also some stripes on the horizon as Portugal will be expected to reach its goal of a 5.9 percent deficit ratio of its GDP for the year 2011. The credit rate of its 10 years government bonds declined to around 10 percent which marked a new low for the year 2011.

2.2.4. Spain

In 2009 Spain's total deficit ratio of its GDP as under the European average at around 50 percent. Even in the following year lying at around 66 percent it still was around 20 percent under the European average. Spain's problem is the high unemployment rate – it has the highest in Europe.

In the case of Spain the real estate market was running extremely well with a double digit growth rate between 1996 and 2006. In 2007 the real estate sector was responsible for 18 percent of Spain's GDP – driving the country’s economy. But it started to have an excess of supply in the housing market and the housing market started to collapse in 2007.

This slump in the construction sector led to a rapid rise in unemployment. The Spanish government tried with economic and social stabilization incentives to buck this trend. The now higher public spending and the rise in social benefits caused a serious deterioration in the budget situation. In the period 2001-2007 the state deficit went down from 56 percent to 37 percent of GDP. Three years later it was over 64 percent. The situation in Spain got so bad that the European commission announced action against its deficit spending in 2009.

At the end of January 2010 Madrid announced a very strict austerity package for the next three years – saving up to €65 billion.

Reaction of the rating agencies:

Standard & Poor's downgraded Spain's credibility on the 28th of April 2010 from AA+ to AA, while Fitch Rating declared that the rating for Spain will remain at the highest level of AAA. At the end of May it downgraded Spain to AA+ however, reasoning that the drastic austerity measures will in the medium run slow down economic growth.
On the 30th of September 2010 the rating agency Moody's decided to not evaluate anymore the creditworthiness of Spain with the highest rating AAA, but instead lower it to AA1. The rating agency justified its measure because of the declining financial strength of the country and the poor economic outlook.
The situation did not get better in 2011. In March the rating agency Moody's came to the decision to lower again the Spanish rating from AA1 to AA2 and they also did not exclude a further downgrading of the highly indebted country. Moody's justified its move with the high financial requirements of the country and the high cost of the banking sector reform.
On the 18th of October 2011 Moody's lowered again the credit rating of Spain by two notches to "A1". High financial requirements, highly indebted banks and corporations and in addition weak economic growth which will hamper the achievement of the ambitious savings targets were given as the reasons for the rating agencies to downgrade Spain further.

2.2.5. Greece

Greece is the only country in the EU that, since the introduction of the Euro, was not able to fulfill the Maastricht criteria concerning the public deficit per GDP. Greece's economic problems as well as the extent of their public deficit came to light only through the change of government in 2009. In February Greece predicted its deficit to be at 3.7 percent, 0.7 percent higher than in the Maastricht treaty. But eight months later elections took place and George Papandreou from the PanHellenic Socialist Movement became the new prime minister. On the following days the new prime

minister revised the state's deficit and announced that the yearly budget deficit will be around 12.7 percent and the public debt will be approximately €410 billion.

In order to understand the reasons of the outbreak of the Greek government-debt crisis it is important to not reduce the crisis to a simple debt level problem. The misery of Greece's debt crisis has various issues including lower GDP growth rates since 2008[32], a huge size of shadow economy (with 24.3 percent of GDP in 2008, the highest level in Europe) and a big amount of inefficient governmental expenditures.
All these facts lead to a downgrading of the credibility of Greece by Standard & Poor's. It is clear that this leads to a vicious cycle as the interest rate that the Hellenic state has to pay on international markets gets higher and higher. Government debt continues to increase and investors are already speculating on a bankruptcy of Greece. The consequence for the Euro was that its value started to decrease tremendously.
In early February 2010, the European Commission decided to put the country under more pressure, in order to diminish its public deficit. The Hellenic government was committed to exhibit regular reports to the European commission about the success of the austerity measures.
After that the Greek prime minister delineated concrete measures about the freezing of wages in the public sector and imposed an increase in several taxes. Such cuts in the budget were necessary for a country, which has seen its borrowing costs escalate in the recent months.
After the risk spread for government bonds reached a new height, the government officially asked for financial aid at the end of April 2010. The EU, the ECB and the IMF agreed on the 1st and 2nd of May to support the country with an aid package of €110 billion. But this package did not calm the markets for very long – the downswing of the Euro continued and the spread for Greek government bonds rose again. Thus from the 7th to the 10th of May the European leaders implemented a stabilization mechanism to prevent a Euro-zone country bankruptcy.
Greece tried hard to reduce its deficit. Government expenditure was reduced by 10 percent but the unemployment rate increased and GDP began to shrink – which leads to lower tax revenues.

[32] Between the year 2000 and 2007 the Greek economy was one oft the fastest growing in the Euro-Zone with an average rate of 4.2 percent per year. A reason therefore was seen in the falling bond yields, which allowed the Greek government to make large structural deficits.

In the first half of 2011 protests against austerity measures of the government started to grow. The important opposition party Nea Dimokratia (ND) was against most of the plan of the government. On the 27th of May the Greek parliament voted against more austerity measures.

A result of this was that the rating agency Standard & Poor's downgraded Greece to CCC. So the country has since June 2011 the worst rating of all graded countries in the world.

The reaction of the EU was that all parties in Greece should agree to debt reduction and if Greece wants to get more financial aid then it should also agree on new austerity measures. On the 29th of June the Greek parliament agreed to the new austerity package.

On the 31st of October Prime Minister Papandreou surprisingly announced that he would let the Greek population vote on the EU's emergency aid. Consequentially the European governments decided to put pressure on Greece. The Euro-zone finance ministers threatened to put on hold the next installment loan. Because of the pressure, Prime Minister George Papandreou decided to revoke the referendum and six days later he announced his resignation. The former ECB-councilor Lucas Papademos was named as new Greek prime minister.

Reaction of the Greeks

In surveys held shortly before the austerity measurement in May 2010 a majority of the population was in favor of it. But as time passed and as the politicians urged for new saving packages the mood in the general public started to change. At the beginning of 2011 more and more demonstrations were held, also with confrontations with the police. Furthermore from January to June 2011 there were four national strikes against the austerity measures.

Since the crisis has started many Greeks have lowered their assets in domestic banks and transferred their money abroad or kept it in cash at home. They feared that the Greek banks could suffer from insolvency.

2.3. Measures against the crisis

What was done or what will be done to surpass this European debt crisis? On the one hand every country had its own solution but on the other hand the IMF and the European Union tried to help overcome this crisis. We want to take a look at how Greece dealt with its problems as it is the core country of the crisis and then we will briefly summarize how the other organizations supported the weaker European countries.

2.3.1. Measures of the Greek government

First austerity package – March/April 2010

On the 3rd of March 2010 value added tax was raised from 19 to 21 percent and an agreement of a cut of the salary of the employees of the public service was reached. The yearly savings should have been around €5 billion. Furthermore the so called Kallikratis plan was made whereby administrative expenses should be cut and it was also planned that the 13th and 14th monthly salary of the civil servants should be cancelled permanently.

Second austerity package – May 2010

On the 2nd of May 2010 the Greek government decided together with the IMF and the European Union an austerity package which should save up to €30 billion until 2013. The package included:

- freezing all salaries of civil servants above 2000 euros
- cancelling of all tax exemptions
- increasing the retirement age from 61 to 64
- increasing value added tax from 21 to 23 percent
- higher tax on tobacco and gas

The parliament agreed on that enormous package on the 6th of May 2010.

Third austerity package – June 2011

The Greek parliament voted for the third austerity package on the 29th of June 2011 which would save up to €78 billion. This package was a main condition for another credit of €110 billion from the European Union.

The main points of this package were:

- increase in property tax and implementing a solidarity tax
- 150 000 civil servants should be cut
- investment in the year 2011 should be cut by €700 millions
- privatization of many state owned companies

2.3.2. Measures of the European Union and the IMF

Legal restriction of the European financial help

The members of the European Union have signed a non–back up clause that there is no automatic accountability of the European Union to liabilities of their member states (article 125 of the European treaty). This article does not exclude the voluntarily taking over of debts of other countries (Bailout).

First austerity package of the EU and the IMF – April 2010

After the rating agencies downgraded the credit liability of Greece and the risk premium for its long term bonds reached a new high, the Greek government officially asked on the 23rd of April for international aid.

The European Union, the European Central Bank and the International Monetary Fund agreed on the 1st and 2nd of May to guarantee a financial aid package of €110 billion. From that total amount of this aid package the IMF contributed €30 billion and the Euro–zone €80 billion. For this help they demanded that the budget of Greece should be consolidated within three years meaning that the budget deficit of 2014 should be dropped under three percent of the GDP.

Second austerity package of the EU and the IMF – July 2011

As the first austerity package was not enough, a new package was agreed during the summit of the European Union on the 21st of July.

The second aid package with a volume of €109 billion was combined under the newly created EFSF (more in detail in the next chapter). Parts of this amount can be lent to countries that need financial support at a low credit rate of 3.5 percent. Also, for the first time the private banking sector should take part in supporting the package on a voluntarily basis. This support should reach the sum of €37 billion by the year of 2014.

Furthermore a rehabilitation plan for boosting the growth of the economy was announced.

2.3.3. Measures of the European Central Bank

In May 2010 the European Central Bank bought Greek bonds to the value of €25 billion to stabilize the price of the country's bond. The ECB announced that it would accept bonds from Greece no matter which rating they have as secure and investable. Also in 2011 the Central Bank continued buying Greek bonds.

Critics on the measures of the ECB

Among European politicians the action of the ECB was not always seen in a positive way. One of the hardest critics has been the former German president Christian Wulff who said that the legal frame for this action is not provided.

On the 1st of September 2011 the president of the German Central Bank Jens Weidemann gave a widely noticed speech. He said that the sovereign debt crisis was the biggest test since the existence of the Euro and he added that the Euro area had already taken a great step towards the generalization of the risks of unsound national finances. He also pointed out that the enforcement of controlling measures and the influence of the national fiscal policy of the member states was missing.

2.3.4. EFSF – European Financial Stability Facility

As a result of the escalation of the Greek debt crisis the EU-member states (predominantly on a French initiative) decided to develop a temporary stabilization mechanism on the 9th of May 2010, with the objective of providing financial assistance to Euro-zone states in economic difficulty, which will come into force in 2013. The European Financial Stability Facility (EFSF) is a special purpose entity in terms of a stock company based in Luxembourg. The member states of the Euro-zone are the shareholders, which send one representative per country to the board, the management body of the EFSF. Klaus Regeling was appointed as managing Director.

The EFSF, in order to grant credits in a crisis situation, can issue bonds or other debt instruments on the capital market, which are guaranteed by the member states. Overall it has a lending capacity of 440 billion Euros. In January 2011, in the context of the Ireland program, the EFSF placed its first asset to the value of €5 billion with an interest rate of 2.89 percent.

In the case that the debt-ridden countries are not able to repay their loans, the member states are liable for the capital to the value of their share in the EFSF, so it would amount to 28 percent for Germany for example. In order to get an AAA rating and therefore pay the lowest possible interest rate on the issue of debt instruments, the EFSF must collateralize them with more than 100 percent by the member states. This follows from the fact that not all of the member countries dispose of an AAA rating. So in order to obtain the sufficient loan amount of €440 billion, they decided at the EU summit of March 2011, to increase the EFSF to a volume of 700 billion Euros. The ratification process was delayed to the October of 2011, due to the resistance of various member states.

In addition to the €440 billion of the EFSF, the so called European Financial Stabilization Mechanism (EFSM) includes €60 billion from the EU budget. Beyond that, a further €250 billion appertain to the stabilization mechanism, which the IMF can provide in form of standby credits.

The aim of the EFSF is to grant loans to crisis countries at much lower rates than they would receive on their own on the international capital markets. In return, the countries that draw advantage from the stability mechanism are forced to arrange adjustment programs with the EU and the IMF. These include besides rigorous

consolidation of national budgets, the commitment to many economic reforms which tend to restrict the growth and the competitiveness of the national economy.

2.3.5. ESM – European Stability Mechanism

From the beginning of 2013, the EFSF should be replaced by a permanent stability mechanism, the so called European Stability Mechanism (ESM). As distinguished from the special purpose entity of the EFSF, the ESM is designed as a fund model. The member state will provide the fund with an initial capital of €80 billion. Similar to the EFSF, the ESM is conducted by a Government Council, consisting of members of each member country. The board of directors, to which each member state will send a representative, is responsible for the current transactions. The Government Council is in charge for the loans assignment to the crisis countries. The member states are committed to provide a guaranteed amount of 620 billion Euros. In addition to the financial resources of the ESM, the IMF will continue to provide €250 billion.
A significant difference when compared to the EFSF is that the ESM is capable of buying government bonds, issued by the Member states, in the primary market. Therewith it is possible to support bonds which are getting or threatening to get in to difficulty on the international capital market.

Chapter 3

3.1. Financial markets in crisis

Firstly what we want to do is provide a brief overview of how the stock markets behaved over a longer period before and compare it with the one during the crisis. The most important stock indices of our countries of interest are:

- Austria – ATX
- France – CAC40
- Germany – DAX
- Greece – Athex20
- Ireland – ISEQ Overall Index
- Italy – MIB30, FTSE MIB
- Portugal – PSI-20
- Spain – IBEX 35

What we want to show in the following two tables is how the behavior of the stock markets in these countries behaved before and during the crisis. In table 3.1 we have chosen the horizon from the beginning of 2003 to the end of 2009. On average you can see that the stock markets in these countries rose 0.03 percent per day with a standard deviation of 1.45 percent and a quite big spread between the minimum and the maximum of the highest daily moves. This is because the subprime crisis in 2008 took its hit on these markets. Nevertheless despite this crisis the mean is still positive. For a better understanding of how the mean and the standard deviation developed we can also exclude the year 2008, which is what is done in table 3.2. The standard deviation declines to a value of 1.17 percent and the mean is in every single country positive. When considering the time during the crisis from the start of 2010 to the end of November 2011 every mean (except Germany as it is seen as a secure and healthy economy) is negative. On the top of the list there is Greece with an average daily stock market decrease of 0.22 percent. Also the volatility in this market is extremely high with a standard deviation of nearly 2.3 percent. But this is not only the case with other markets also suffering from higher volatility compared to the previous period. So this leads to the conclusion that the stock markets during this crisis tend to be highly volatile and investors are reacting strongly to news releases regardless in which direction.

Table 3.1: Stock Market Returns in percent - Summary Statistics (alphabethic order)

	Period A1				Period B					
	All Days				All Days				Market Jitters	
Country	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max	Mean	St. Dev.
Austria	0,06	1,69	-9,74	12,77	-0,06	1,69	-6,11	9,10	-0,64	5,19
France	0,02	1,47	-9,04	11,18	-0,04	1,64	-5,48	9,66	-1,01	5,14
Germany	0,05	1,51	-7,16	11,40	0,00	1,51	-5,82	5,35	-0,09	4,64
Greece	0,02	1,52	-9,71	9,54	-0,22	2,29	-6,92	14,37	1,16	6,80
Ireland	-0,01	1,60	-13,03	10,22	-0,01	1,50	-5,78	7,86	-0,82	4,44
Italy	0,01	1,37	-8,24	11,49	-0,08	1,86	-6,80	11,28	-0,96	5,57
Portugal	0,03	1,07	-9,86	10,20	-0,09	1,47	-5,36	10,73	-1,38	4,42
Spain	0,05	1,38	-9,14	10,65	-0,07	1,83	-6,64	14,43	-0,65	5,87
Average	0,03	1,45	-9,49	10,93	-0,07	1,72	-6,11	10,35	-0,55	5,26

Period A1 = January 1, 2003 to December 31, 2009
Period B = January 1, 2010 to November 28, 2011

St. Dev. = Standard Deviation
Min = Minimum
Max = Maximum

Table 3.2: Stock Market Returns in percent - Summary Statistics (alphabethic order)

	Period A2				Period B					
	All Days				All Days				Market Jitters	
Country	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max	Mean	St. Dev.
Austria	0,12	1,33	-8,62	5,45	-0,06	1,69	-6,11	9,10	-0,64	5,19
France	0,06	1,19	-5,67	7,25	-0,04	1,64	-5,48	9,66	-1,01	5,14
Germany	0,09	1,31	-6,14	6,87	0,00	1,51	-5,82	5,35	-0,09	4,64
Greece	0,09	1,30	-6,21	7,15	-0,22	2,29	-6,92	14,37	1,16	6,80
Ireland	0,06	1,22	-7,43	4,87	-0,01	1,50	-5,78	7,86	-0,82	4,44
Italy	0,05	1,12	-6,57	6,99	-0,08	1,86	-6,80	11,28	-0,96	5,57
Portugal	0,07	0,79	-4,53	3,91	-0,09	1,47	-5,36	10,73	-1,38	4,42
Spain	0,08	1,08	-4,60	4,93	-0,07	1,83	-6,64	14,43	-0,65	5,87
Average	0,08	1,17	-6,22	5,93	-0,07	1,72	-6,11	10,35	-0,55	5,26

Period A2 = January 1, 2003 to December 31, 2009, except the year 2008
Period C = January 1, 2010 to November 28, 2011

St. Dev. = Standard Deviation
Min = Minimum
Max = Maximum

3.2. Days of market jitters

Over our observation period of nearly 2 years from the beginning of 2010 until the end of November of 2011 we found out that the days of market jitters are not just appearing on a certain day in one country but also in other countries. Figure 1 illustrates how many stock indices of our sample countries experienced high swings on each day[33]. This phenomena was also shown in other studies, such as R. Roll (1988)[34], Arshanapalli and Doukas (1993)[35], Gjerde and Saettem (1995)[36] and Eun and Shim (1989)[37]. Their conclusions were:

a) The world market is getting more integrated, especially after the world wide shock of October 1987.
b) The US stock market is the dominant stock market and influences all other stock markets, whereas the others have a small or no influence on the US stock market.
c) The European stock markets are integrated to each other and the US stock market is influencing these stock markets, but none of them is significantly influencing the US stock market.

In terms of our study we can say that volatility started to increase at the end of April respectively beginning of May 2010. This was the time when the rating agencies started to downgrade Greece to junk status and the European Union and IMF unveiled their help package to stop the sovereign debt crisis. After that markets calmed down and started to peak out again at the middle of October 2011 when the United States got downgraded, future prospects of recession arose and some governments in Europe started to tumble.

Looking at each country separately with the starting point of the stocks prices at the 1st of January 2010 you can see when in each country the market turbulences started

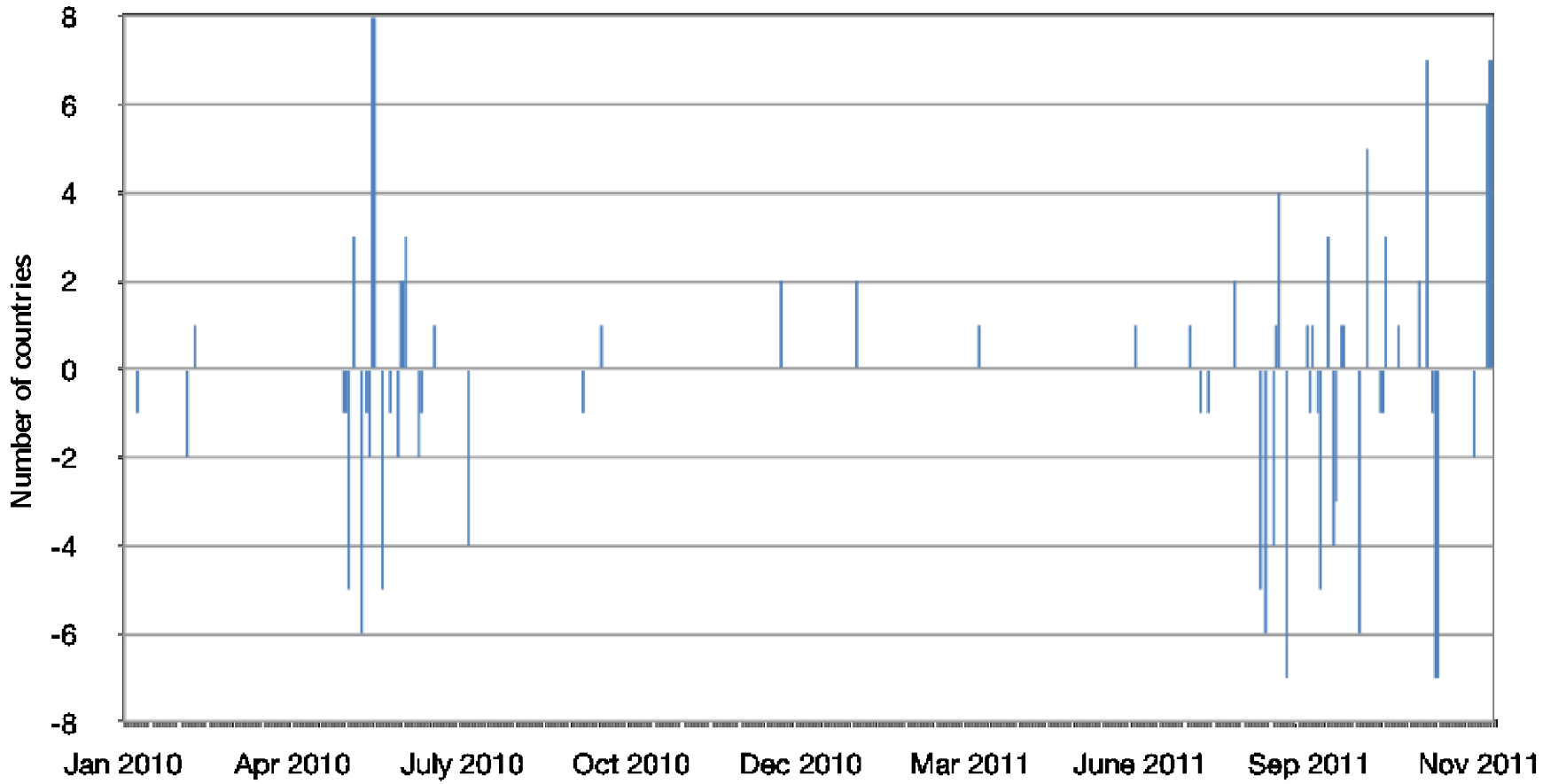
[33] Also at appendix A we included a table where you can compare the percentage changes of the other countries at a day of a top 20 market jitters.
[34] Roll R., (1988). The international crash of October 1987. *Financial Analyst Journal*, Vol. 44, pp.19-35
[35] Arshanapalli B., J. Doukas, (1993). International stock market linkages: Evidence from the pre- and post- October 1987 period, *Journal of Banking and Finance*, Vol. 17, pp. 193-208
[36] Gjerde O., Saettem F., (1995). Linkages among European and world stock markets, *The European Journal of Finance*, Vol. 1, pp. 165-179
[37] Eun S., Shim S., (1989). International transmission of stock market movements, *Journal of International Financial Management*, Vol. 8, pp. 89-101

to occur. In each of the following figures from 3.2 to 3.9 the 1st of January 2010 has the value 100 and the triangles symbolize the days of market rallies while the circles stand for days of market downturns.

For Austria, France, Italy, Portugal and Spain you can say that their reactions during the crisis are similar to the average of all the countries. But for Germany in figure 4 you see that there is only one negative market jitter in the year 2010. In the middle of 2011 the stock market in Germany started to increase its volatility. Germany's economy was quite stable but as the debt crisis deepened the fear that it would it would also reach Germany made the DAX swing. In the case of Greece in figure 3.5 we can say that the stock index experienced turbulence throughout the considered time horizon. The situation in Ireland was quite different. A large number of the top 20 swings of its stock exchange are already in the second quarter of 2010. This is because the banking sector in Ireland had huge problems at that time[38]. So the big swings for Ireland began earlier than in the other countries.

[38] A National Asset Management Agency (NAMA) was founded as a Bad Bank (=private banks are allowed to take risky assets off their books to the Bad Bank) and took over liabilities worth €81 billion of the following banks: Allied Irish Banks, Anglo Irish Bank, Bank of Ireland, Irish Nationwide Building Society and EBS Building Society.

Figure 3.1: Evolution of Market Turbulences



Stock Market Indices and Days of Stock Market Jitters

Figure 3.2: Austria

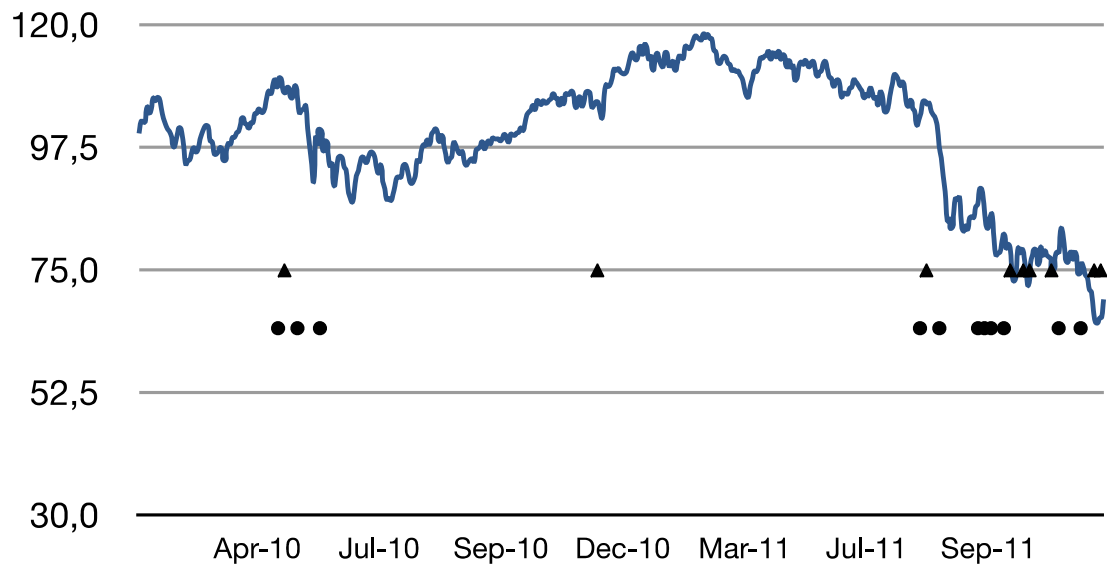
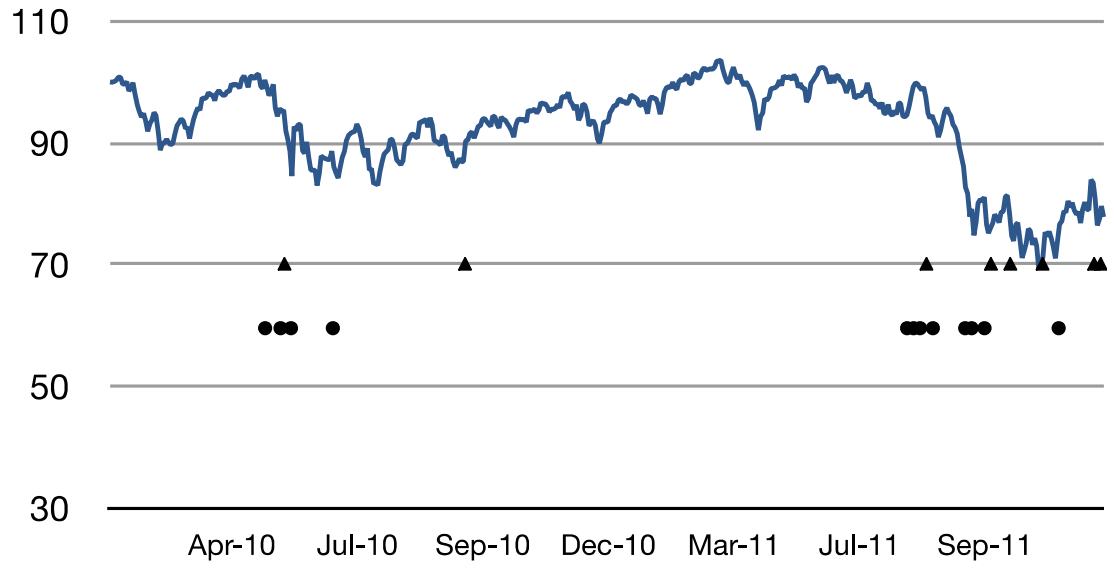


Figure 3.3: France



Notes: January 1, 2010 = 100
Triangles: Days of Positive Market Jitters Circles: Days of Negative Market Jitters

Figure 3.4: Germany

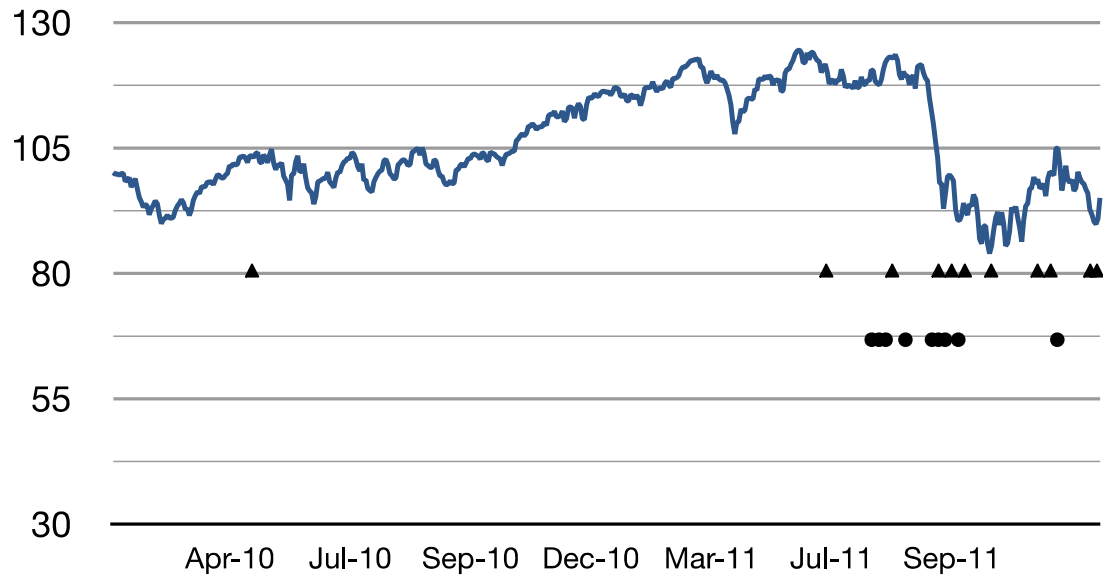
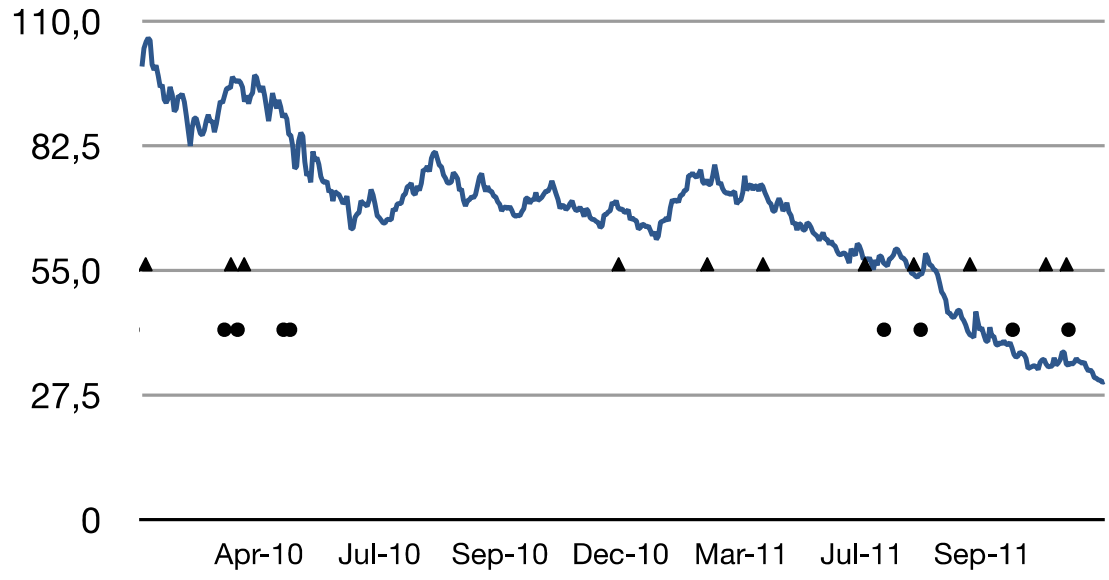


Figure 3.5: Greece



Notes: January 1, 2010 = 100
Triangles: Days of Positive Market Jitters Circles: Days of Negative Market Jitters

Figure 3.6: Ireland

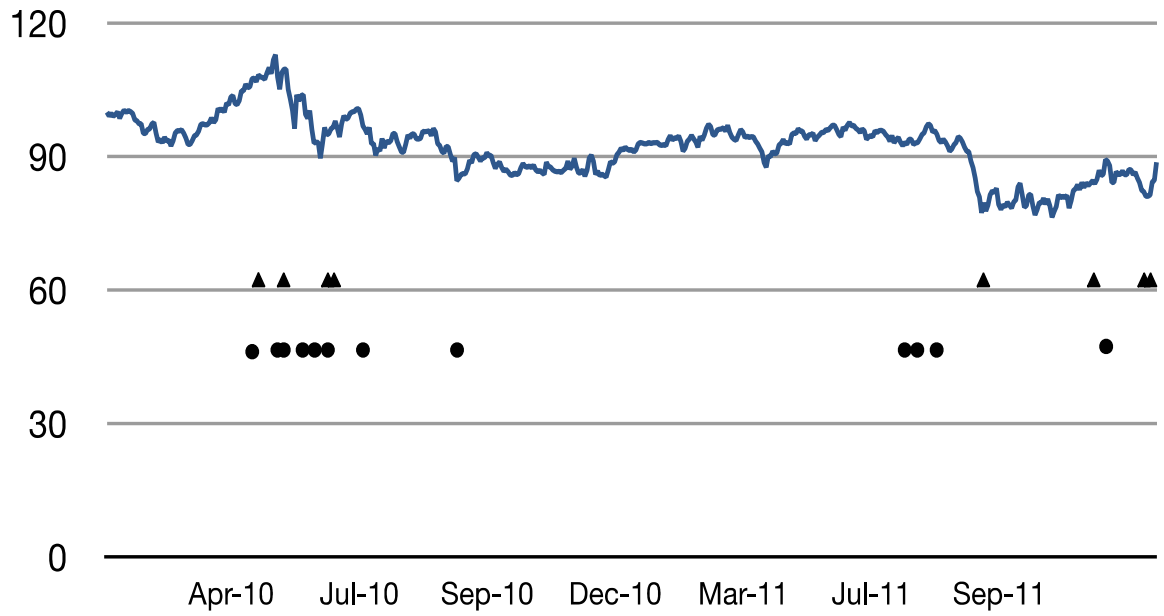
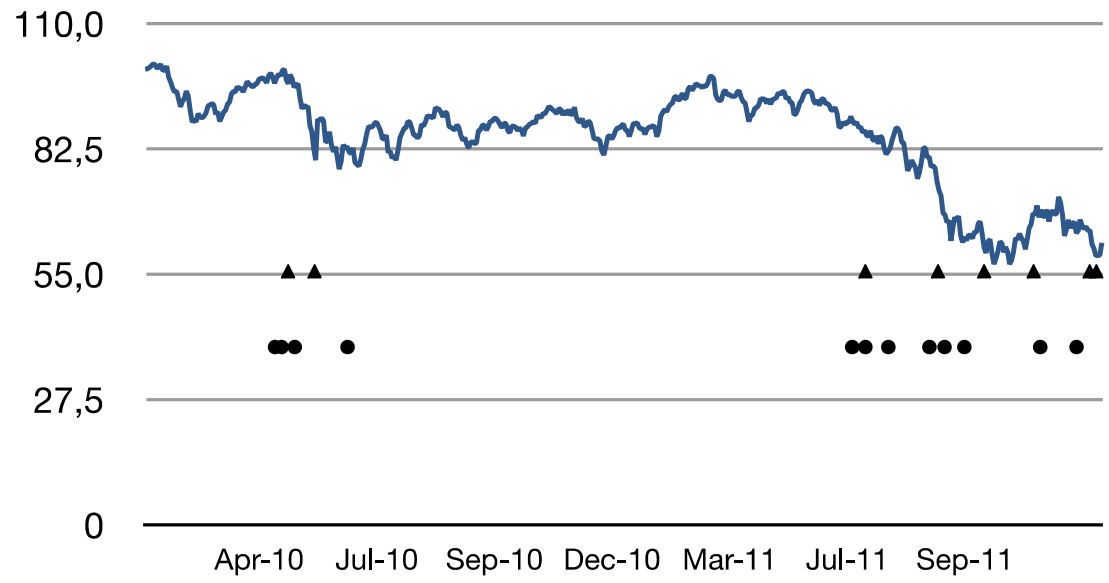


Figure 3.7: Italy



Notes: January 1, 2010 = 100
Triangles: Days of Positive Market Jitters Circles: Days of Negative Market Jitters

Figure 3.8: Portugal

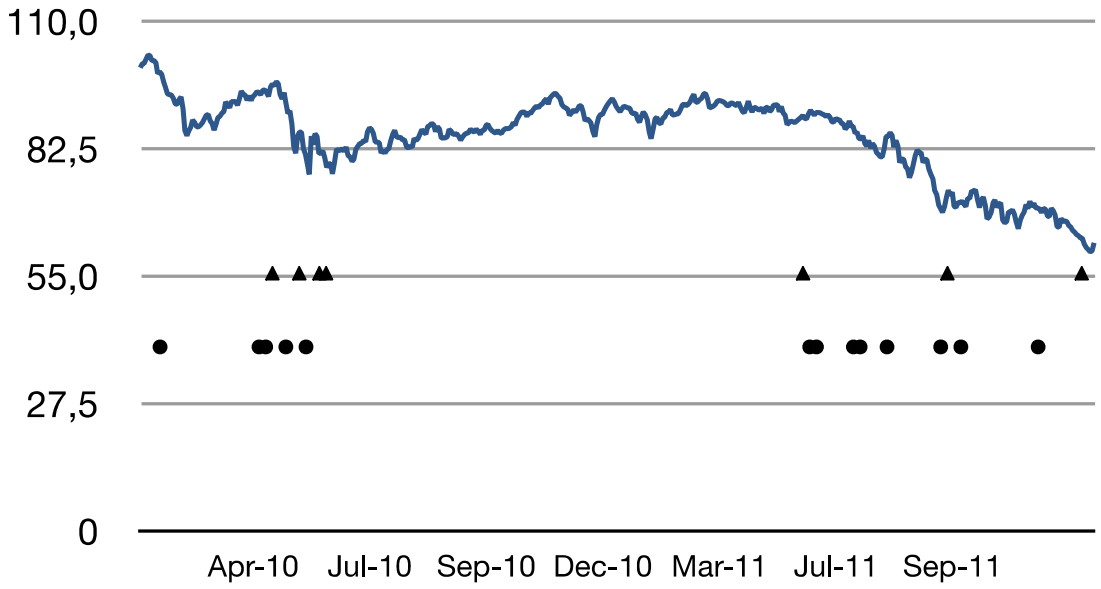
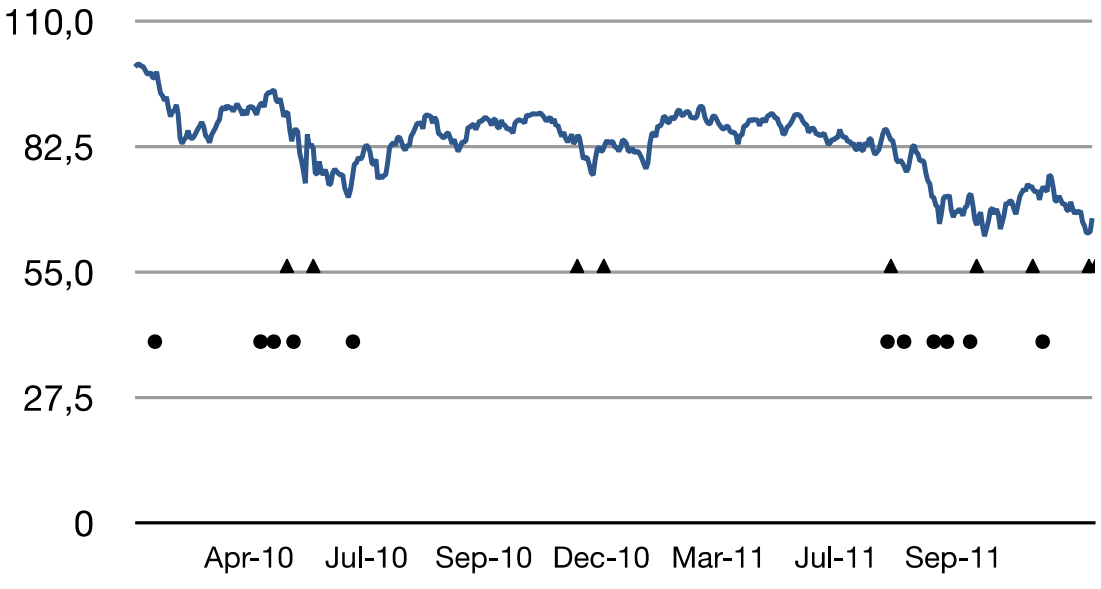


Figure 3.9: Spain



Notes: January 1, 2010 = 100
Triangles: Days of Positive Market Jitters Circles: Days of Negative Market Jitters

3.3. Declaring news and dummy variables

It is somehow clear that news influences an investor's decision in buying or selling financial goods. What we are going to do is to take a closer look at how the nature of a news update influences stock movements. Therefore we picked the same countries and their stock indices as in the last section and perform a few technical analyses. The source for our information of the news is mainly Bloomberg with the exception of the smaller countries like Austria and Ireland as they are not included in the archive of Bloomberg. For these countries we use local newspapers of these countries like the Presse and the Irish Times. We further cross-checked all our news with that of other financial agencies like the Financial Times, sole24hore, reuters.com, CNN, wallstreetjournal, marketWatch, etc. and found that these sources report similar data to Bloomberg.

Our next step was to create our dataset with the top 20 largest swings of the indices of our eight chosen countries dividing it into the following columns (see chapter 4.1 table: 4.1). Firstly there is the date when the event of a market turbulence happened; next we stated the country whose index was affected by a large swing and the percentage change of the index on this certain day: then there is our main column of the news texts that were released on that specific day. Subsequently we looked where these news items had their origin from and classified the news into certain categories. It shows that it is also possible that news can originate in more than one country and that it is not just limited to the countries of our sample. You can see that business related information from the United States, China etc. also affected the European stock market. We have also added the European Union as a source of origin of news as this heavily influences monetary policy and international agreements. Similarly, for a given country of origin there can also be news from more than one sector on any given day. We have divided the data it into six groups:

- *economic news (EN):* consisting of financial, real or external sector news
- *political news (PN):* that means political decisions, political speeches, political events, elections or political talk
- *international agreement (IA):* including agreements from the European Union, the EFSF, international organizations or financial community
- *monetary policy (MP):* release of information of an expansionary or contractionary monetary policy

- *credit ratings (CR):* ratings by international agencies like Moody's, Standard & Poor's, and Fitch.
- *no news (NN):* if on that they there was no relevant news released

The last column contains our press information transformed into a dummy variable. The value of these dummies can either 1, -1 for the sector stated in the previous column. For our regression later on these dummies also take the value zero if on a certain day there is no specific news available for that particular type of sector. On the data sheet of the next pages we excluded all zero values for a better overview. When do these dummy variables take the value 1, -1 or zero?

EN: +1: the news suggest a better outlook for financial, real or external sectors of the economy
–1: the news suggest a worse outlook for financial, real or external sectors of the economy
0: otherwise

PN: +1: if there is an political event that creates political stability
–1: if there is an political event that creates political uncertainty
0: otherwise

IA: +1: when an international agreement that affects the country in a positive way is signed or a positive international agreement becomes closer to be accepted
–1: when an international agreement that affects the country in a negative way is signed or a positive international agreement moves away to be accepted
0: otherwise

MP: +1: release of information of an expansionary monetary policy
–1: release of information of a contractionary monetary policy
0: otherwise

CR: +1: if a rating agency upgrades or has a positive outlook for the country
–1: if a rating agency downgrades or has a negative outlook for the country
0: otherwise

NN: +1: if there are not any relevant news or just rumors

0: otherwise

The dummy variable describes whether investors are making their decisions based on rumors or their individual belief but not on any fundamental data. Mostly in our date on days with no news the media is expressing their concern about a bad economic situation where else no economic news can be found on those days. So we can say that on those no news days the swings on the stock markets are caused by herding behavior with no profound background data supporting it.

Chapter 4

4.1. News

Table 4.1: Daily Returns (in per cent) and News in Days of Market Jitters

Date	Ctry.	Change	News	Origin from	type	value
12.01.10	Gre	-5,0	The European Commission has published a damning report on Greece's "unreliable" economic figures, increasing the chances of the EU executive launching infringement proceedings against Athens. The EU nations have asked the commission to propose appropriate measures to be taken to address the situation.	Gre	PN	-1
04.02.10	Spain	-5,9	Spanish Treasury sold bonds at higher interest rate than expected.	Spain	MP	-1
04.02.10	Por	-5,0	Portuguese bond auction fails and the spread rose.	Por	MP	-1
09.02.10	Gre	5,0	First austerity package. The package was implemented on 9 February 2010 and included a freeze in the salaries of all government employees, a 10% cut in bonuses, as well as cuts in overtime workers, public employees and work-related travels.	Gre	IA	1
09.02.10	Gre	5,0	The austerity package was implemented on 9 February 2010 and included a freeze in the salaries of all government employees, a 10% cut in bonuses, as well as cuts in overtime workers, public employees and work-related travels.	Gre	FP	1
26.04.10	Por	-3,2	Germany unwilling to help Greece out unconditionally.	Ger	IA	-1
27.04.10	Gre	-6,0	S&P downgrades Greek debt to junk status.	Gre	CR	-1
27.04.10	France	-3,8	S&P Cuts Portugal and Greece Ratings.	Por/Gre	CR	-1
27.04.10	Spain	-4,2	S&P Cuts Portugal and Greece Ratings.	Por/Gre	CR	-1
27.04.10	Por	-5,4	S&P lowered the investment grade status of Portugal, citing the weak "macroeconomic structures".	Por	CR	-1
27.04.10	Ire	-4,5	S&P Cuts Portugal and Greece Ratings.	Por/Gre	CR	-1
29.04.10	Gre	7,1	EU Nears Agreement on Aid Package.	Gre	IA	1
29.04.10	Por	4,6	EU Nears Agreement on Aid Package.	Gre	IA	1
29.04.10	Ire	3,5	EU Nears Agreement on Aid Package.	Gre	IA	1
04.05.10	Italy	-4,7	Concerns that the rescue package for Greece will need to be extended to Spain and Portugal.	Por/Spain	NN	1
04.05.10	Gre	-6,7	Prime Minister George Papandreou announced a new round of austerity measures. The bill was submitted to Parliament on 4 May which led to massive demonstrations.	Gre	FP	-1

Date	Ctry.	Change	News	Origin from	type	value
04.05.10	Spain	-5,4	Concerns that the rescue package for Greece will need to be extended to Spain and Portugal.	Por/Spain	NN	1
04.05.10	Por	-4,2	Concerns that the rescue package for Greece will need to be extended to Spain and Portugal.	Por/Spain	NN	1
04.05.10	Aut	-4,0	Concerns that the rescue package for Greece will need to be extended to Spain and Portugal.	Por/Spain	NN	1
04.05.10	Ire	-4,2	Concerns that the rescue package for Greece will need to be extended to Spain and Portugal.	Por/Spain	NN	1
06.05.10	Italy	-4,3	Italy's government cuts its economic growth forecasts for the year 2010 and 2011.	Italy	EN	-1
06.05.10	Italy	-4,3	Banking systems in Greece, Portugal, Italy, Spain, Ireland and the U.K. may come under pressure as the crisis worsens (Moody's said in a report).	Italy	CR	-1
07.05.10	France	-4,6	Debt crisis in Greece will spread. Credit Agricole SA, France's biggest bank by branches has 2.4 billion euros of commercial commitments in Greece.	Gre	NN	1
07.05.10	Ire	-4,1	No News.	Ire	NN	1
10.05.10	Italy	11,3	European policy makers unveiled an unprecedented loan package worth almost $1 trillion and a program of bond purchases to stop a sovereign-debt crisis.	EU	IA	1
10.05.10	Italy	11,3	Central banks buy government bonds of euro countries.	EU	MP	1
10.05.10	Gre	9,1	European policy makers unveiled an unprecedented loan package worth almost $1 trillion and a program of bond purchases to stop a sovereign-debt crisis.	EU	IA	1
10.05.10	Gre	9,1	Central banks buy government bonds of euro countries.	EU	MP	1
10.05.10	France	9,7	European policy makers unveiled an unprecedented loan package worth almost $1 trillion and a program of bond purchases to stop a sovereign-debt crisis.	EU	IA	1
10.05.10	France	9,7	Central banks buy government bonds of euro countries.	EU	MP	1
10.05.10	Ger	5,3	European policy makers unveiled an unprecedented loan package worth almost $1 trillion and a program of bond purchases to stop a sovereign-debt crisis.	EU	IA	1
10.05.10	Ger	5,3	Central banks buy government bonds of euro countries.	EU	MP	1
10.05.10	Spain	14,4	European policy makers unveiled an unprecedented loan package worth almost $1 trillion and a program of bond purchases to stop a sovereign-debt crisis.	EU	IA	1

Date	Ctry.	Change	News	Origin from	type	value
10.05.10	Spain	14,4	Central banks buy government bonds of euro countries.	EU	MP	1
10.05.10	Por	10,7	European policy makers unveiled an unprecedented loan package worth almost $1 trillion and a program of bond purchases to stop a sovereign-debt crisis.	EU	IA	1
10.05.10	Por	10,7	Central banks buy government bonds of euro countries.	EU	MP	1
10.05.10	Aut	9,1	European policy makers unveiled an unprecedented loan package worth almost $1 trillion and a program of bond purchases to stop a sovereign-debt crisis.	EU	IA	1
10.05.10	Aut	9,1	Central banks buy government bonds of euro countries.	EU	MP	1
10.05.10	Ire	7,9	Bank of Ireland Cuts Rights Issue After $1.1 Billion Debt-for-Equity Swap.	Ire	EN	1
10.05.10	Ire	7,9	Central banks buy government bonds of euro countries.	EU	MP	1
14.05.10	Italy	-5,3	Concerns that the fiscal debt crisis in southern Europe will persist.	EU	NN	1
14.05.10	France	-4,6	Concern that the Euro's debt crisis will hamper economic growth.	EU	NN	1
14.05.10	Spain	-6,6	Concern that the Euro's debt crisis will hamper economic growth.	EU	NN	1
14.05.10	Por	-4,3	Concern that the Euro's debt crisis will hamper economic growth.	EU	NN	1
14.05.10	Ire	-4,3	Concern that the Euro's debt crisis will hamper economic growth.	EU	NN	1
19.05.10	Ire	-4,2	No News.	Ire	NN	1
25.05.10	Aut	-4,4	IWF criticise Spain as a consequence of the default of the Bank Cajasur	Spain	IA	-1
25.05.10	Ire	-3,8	The Irish maker of Magners Cider reported an 8.1 percent drop in annual profit and said it remains "cautious" about the Irish and U.K. economies.	Ire	EN	-1
26.05.10	Por	3,2	Billionaire Carlos Slim is studying the purchase of a stake in the Portugal Telecom SGPS SA.	Por	EN	1
26.05.10	Ire	3,7	No News.	Ire	NN	1
27.05.10	Italy	4,5	China said it will continue to invest in Europe amid the region's debt crisis.	China	PN	1
27.05.10	Por	3,6	China said it will continue to invest in Europe amid the region's debt crisis.	China	PN	1
27.05.10	Ire	3,9	China said it will continue to invest in Europe amid the region's debt crisis.	China	PN	1
04.06.10	Gre	-5,0	Concerns about Hungarian economical situation.	Hungary	EN	-1
04.06.10	Aut	-4,1	Concerns about Hungarian economical situation.	Hungary	EN	-1
07.06.10	Gre	-5,5	European Debt Concerns .	EU	NN	1

Date	Ctry.	Change	News	Origin from	type	value
11.06.10	Spain	4,0	European Union said Spain is implementing the “necessary measures” to rein in its budget deficit.	Spain	PN	1
29.06.10	Italy	-4,4	Concern over weakening growth in China.	China	EN	-1
29.06.10	Italy	-4,4	Slump in U.S. consumer confidence.	USA	EN	-1
29.06.10	France	-4,0	Concern over weakening growth in China.	China	EN	-1
29.06.10	France	-4,0	Slump in U.S. consumer confidence.	USA	EN	-1
29.06.10	Spain	-5,5	Concern over weakening growth in China.	China	EN	-1
29.06.10	Spain	-5,5	Slump in U.S. consumer confidence.	USA	EN	-1
29.06.10	Ire	-3,8	Concern over weakening growth in China.	China	EN	-1
29.06.10	Ire	-3,8	Slump in U.S. consumer confidence.	USA	EN	-1
24.08.10	Ire	-5,8	Standard & Poor's Ratings Services trims its rating on Ireland by one notch.	Ire	CR	-1
01.09.10	France	3,8	Better-than-estimated growth in American and Chinese manufacturing bolstered confidence in the global economic recovery.	USA/China	EN	1
01.12.10	Spain	4,4	China commits to European Investment.	USA	EN	1
01.12.10	Aut	3,7	Austrian unemployment rate sinks 5.2%	Aut	EN	1
01.12.10	Aut	3,7	USA commits to European Investment.	USA	EN	1
12.01.11	Gre	5,0	Europe puts effort to Resolve Debt Crisis.	EU	NN	1
12.01.11	Spain	5,4	Portugal completes Bond Sale.	Por	MP	1
14.03.11	Gre	5,2	EU Leaders Expand Bailout Plan.	EU	IA	1
31.05.11	Gre	5,6	Greece Will Probably Get EU Aid to Avoid Default (Fitch Ratings).	Gre	CR	1
30.06.11	Por	3,0	Greek lawmakers approved a bill authorizing austerity measures, qualifying the country for further aid.	Gre	FP	1
06.07.11	Por	-3,0	Moody’s Investors Service cut Portugal’s credit rating to junk status.	Por	CR	-1
11.07.11	Por	-4,3	The country’s central bank said that Portugal’s economy will shrink more than forecasted this year and will contract in 2012.	Por	EN	-1
22.07.11	Gre	5,9	EU Agrees on Second Bailout Plan for Greece.	Gre	IA	1
22.07.11	Ger	3,7	Euro-area leaders announced a new aid package for Greece and measures to protect Spain and Italy from higher bond yields.	EU	IA	1
04.08.11	Italy	-5,2	The European Central Bank resumed bond purchases and offered banks more cash to stem the spread of the debt crisis.	EU	MP	1
04.08.11	Italy	-5,2	Concerns that the global economy may relapse into a recession.	USA	EN	-1
04.08.11	France	-3,9	The European Central Bank resumed bond purchases and offered banks more cash to stem the spread of the debt crisis.	EU	MP	1
04.08.11	France	-3,9	Concerns that the global economy may relapse into a recession.	USA	EN	-1
04.08.11	Ger	-3,4	The European Central Bank resumed bond purchases and offered banks more cash to stem the spread of the debt crisis.	EU	MP	1
04.08.11	Ger	-3,4	Concerns that the global economy may relapse into a recession.	USA	EN	-1

Date	Ctry.	Change	News	Origin from	type	value
04.08.11	Por	-3,3	The European Central Bank resumed bond purchases and offered banks more cash to stem the spread of the debt crisis.	EU	MP	1
04.08.11	Por	-3,3	Concerns that the global economy may relapse into a recession.	USA	EN	-1
04.08.11	Ire	-3,5	The European Central Bank resumed bond purchases and offered banks more cash to stem the spread of the debt crisis.	EU	MP	1
04.08.11	Ire	-3,5	Ireland's unemployment rate rose to the highest in six months in July.	Ire	EN	-1
08.08.11	Gre	-6,0	U.S. Loses AAA Credit Rating as S&P Slams Debt Levels.	USA	CR	-1
08.08.11	France	-4,7	U.S. Loses AAA Credit Rating as S&P Slams Debt Levels.	USA	CR	-1
08.08.11	Ger	-5,0	U.S. Loses AAA Credit Rating as S&P Slams Debt Levels.	USA	CR	-1
08.08.11	Por	-3,1	U.S. Loses AAA Credit Rating as S&P Slams Debt Levels.	USA	CR	-1
08.08.11	Aut	-6,1	U.S. Loses AAA Credit Rating as S&P Slams Debt Levels.	USA	CR	-1
08.08.11	Ire	-4,4	U.S. Loses AAA Credit Rating as S&P Slams Debt Levels.	USA	CR	-1
10.08.11	Italy	-6,6	Cost to insure French government debt against default climbed to a record.	France	EN	-1
10.08.11	France	-5,5	Cost to insure French government debt against default climbed to a record.	France	EN	-1
10.08.11	Ger	-5,1	Cost to insure French government debt against default climbed to a record.	France	EN	-1
10.08.11	Spain	-5,5	Cost to insure French government debt against default climbed to a record.	France	EN	-1
11.08.11	Italy	4,1	Investors speculated that recent losses have overestimated the slowdown in the pace of economic growth.	EU	NN	1
12.08.11	France	4,0	France, Spain, Italy and Belgium imposed short-selling bans.	France/ Spain/Italy	MP	1
12.08.11	Ger	3,5	France, Spain, Italy and Belgium imposed short-selling bans.	France/ Spain/Italy	MP	1
12.08.11	Spain	4,8	France, Spain, Italy and Belgium imposed short-selling bans.	France/ Spain/Italy	MP	1
12.08.11	Aut	3,8	France, Spain, Italy and Belgium imposed short-selling bans.	France/ Spain/Italy	MP	1
18.08.11	Italy	-6,1	Fears about a sharp slowdown in global economic growth and worries over the health of the European banking sector.	EU	NN	1
18.08.11	France	-5,5	Fears about a sharp slowdown in global economic growth and worries over the health of the European banking sector.	EU	NN	1
18.08.11	Ger	-5,8	Fears about a sharp slowdown in global economic growth and worries over the health of the European banking sector.	EU	NN	1

Date	Ctry.	Change	News	Origin from	type	value
18.08.11	Spain	-4,7	Fears about a sharp slowdown in global economic growth and worries over the health of the European banking sector.	EU	NN	1
18.08.11	Por	-4,1	Fears about a sharp slowdown in global economic growth and worries over the health of the European banking sector.	EU	NN	1
18.08.11	Aut	-5,2	Fears about a sharp slowdown in global economic growth and worries over the health of the European banking sector.	EU	NN	1
18.08.11	Ire	-4,3	The Irish government must change the way it handles the public finances and accept greater EU surveillance of its policies.	Ire	NN	1
29.08.11	Gre	14,4	EFG Eurobank Ergasias SA (EUROB) and Alpha Bank SA announced a merger.	Gre	EN	1
30.08.11	Gre	-4,8	National Bank of Greece SA (ETE), the country's biggest bank, reported a first-half loss after writing down its holdings of Greek government bonds.	Gre	EN	-1
31.08.11	Ire	3,7	Irish and Portuguese securities rose as German Chancellor Angela Merkel's Cabinet approved proposed changes to the European Financial Stability Facility.	Ger	IA	1
02.09.11	Ger	-3,4	European Stocks Sink as Report Shows U.S. Jobs Growth Stagnates.	USA	EN	-1
05.09.11	Italy	-4,8	Merkel lost an important election - The German Chancellor failed to sway voters in her home state with a campaign based on her handling of the euro area's debt crisis.	Ger	PN	-1
05.09.11	France	-4,7	Merkel lost an important election - The German Chancellor failed to sway voters in her home state with a campaign based on her handling of the euro area's debt crisis.	Ger	PN	-1
05.09.11	Ger	-5,3	Merkel lost an important election - The German Chancellor failed to sway voters in her home state with a campaign based on her handling of the euro area's debt crisis.	Ger	PN	-1
05.09.11	Spain	-4,7	Merkel lost an important election - The German Chancellor failed to sway voters in her home state with a campaign based on her handling of the euro area's debt crisis.	Ger	PN	-1
07.09.11	Italy	4,2	Silvio Berlusconi won a confidence vote on austerity measures.	Italy	PN	1
07.09.11	Gre	8,0	Germany's top court rejected challenges to the participation of Europe's largest economy in the Euro rescue funds.	Ger	EN	1
07.09.11	Gre	8,0	Silvio Berlusconi won a confidence vote on austerity measures.	Italy	PN	1
07.09.11	Ger	4,1	Germany's top court rejected challenges to the participation of Europe's largest economy in euro rescue funds.	Ger	EN	1

Date	Ctry.	Change	News	Origin from	type	value
07.09.11	Ger	4,1	Silvio Berlusconi won a confidence vote on austerity measures.	Italy	PN	1
09.09.11	Italy	-4,9	European Central Bank said that Executive Board member Juergen Stark has resigned for “personal reasons.” Stark will keep his post until the central bank appoints his successor.	EU	NN	1
09.09.11	Ger	-4,0	European Central Bank said that Executive Board member Juergen Stark has resigned for “personal reasons.” Stark will keep his post until the central bank appoints his successor.	EU	NN	1
09.09.11	Spain	-4,4	European Central Bank said that Executive Board member Juergen Stark has resigned for “personal reasons.” Stark will keep his post until the central bank appoints his successor.	EU	NN	1
09.09.11	Aut	-5,4	European Central Bank said that Executive Board member Juergen Stark has resigned for “personal reasons.” Stark will keep his post until the central bank appoints his successor.	EU	NN	1
12.09.11	France	-4,0	Moody’s said to cut the french bank’s ratings (BNP Paribas (BNP) SA, Societe Generale SA and Credit Agricole SA) because of their Greek holdings.	France	CR	-1
12.09.11	France	-4,0	Speculation mounted that Germany is preparing for Greece to default.	Gre	EN	-1
12.09.11	Por	-4,2	Speculation mounted that Germany is preparing for Greece to default.	Gre	EN	-1
12.09.11	Aut	-3,8	Speculation mounted that Germany is preparing for Greece to default.	Gre	EN	-1
14.09.11	Ger	3,4	Germany, France Confirm Support for Greece.	Ger/France	IA	1
15.09.11	Por	3,1	European Central Bank announced coordinated measures with the Federal Reserve to ensure banks have enough dollars.	EU	MP	1
22.09.11	Italy	-4,5	Federal Reserve signaled “significant downside risks” to the world’s largest economy.	USA	EN	-1
22.09.11	Italy	-4,5	European Central Bank Said to Be Buying Spanish, Italian Bonds.	Italy	MP	1
22.09.11	France	-5,3	Federal Reserve signaled “significant downside risks” to the world’s largest economy.	USA	EN	-1
22.09.11	Ger	-5,0	Federal Reserve signaled “significant downside risks” to the world’s largest economy.	USA	EN	-1
22.09.11	Spain	-4,6	Federal Reserve signaled “significant downside risks” to the world’s largest economy.	USA	EN	-1
22.09.11	Spain	-4,6	European Central Bank Said to Be Buying Spanish, Italian Bonds.	Spain	MP	1

Date	Ctry.	Change	News	Origin from	type	value
22.09.11	Por	-5,2	Federal Reserve signaled “significant downside risks” to the world’s largest economy.	USA	EN	-1
22.09.11	Aut	-6,1	Federal Reserve signaled “significant downside risks” to the world’s largest economy.	USA	EN	-1
27.09.11	Italy	4,9	Germany vowed continued support for Greece.	Ger	PN	1
27.09.11	France	5,7	Germany vowed continued support for Greece.	Ger	PN	1
27.09.11	Ger	5,3	Germany vowed continued support for Greece.	Ger	PN	1
27.09.11	Spain	4,0	Germany vowed continued support for Greece.	Ger	PN	1
27.09.11	Aut	5,7	Germany vowed continued support for Greece.	Ger	PN	1
04.10.11	Gre	-6,3	The Eurogroup has again postponed the disbursement of a sixth tranche of aid to Greece.	Gre	IA	-1
05.10.11	France	4,3	Moody’s Downgrades Italy.	Italy	CR	-1
05.10.11	France	4,3	Postitive US economic data.	USA	EN	1
05.10.11	Ger	4,9	Postitive US economic data.	USA	EN	1
05.10.11	Aut	5,7	Postitive US economic data.	USA	EN	1
12.10.11	Aut	4,2	The Slovakian goverment agreed to enlarge the EFSF.	Slovakia	IA	1
21.10.11	Gre	5,3	Euro-Area Finance Chiefs Approve Sixth Aid Payment to Greece.	Gre	IA	1
21.10.11	Ger	3,5	Euro-Area Finance Chiefs Approve Sixth Aid Payment to Greece.	Gre	IA	1
27.10.11	Italy	5,5	Region’s leaders agreed to expand a bailout fund to halt the sovereign debt crisis.	EU	IA	1
27.10.11	Gre	4,8	Eurozone leaders and the IMF came to an agreement with banks to accept a 50% write-off of (some part of) Greek's debt.	EU	IA	1
27.10.11	France	6,3	Agreement of European Bank's with the European Union on their recapitalization.	EU	IA	1
27.10.11	Ger	5,3	Agreement of European Bank's with the European Union on their recapitalization.	EU	IA	1
27.10.11	Spain	5,0	Agreement of European Bank's with the European Union on their recapitalization.	EU	IA	1
27.10.11	Aut	5,8	Agreement of European Bank's with the European Union on their recapitalization.	EU	IA	1
27.10.11	Ire	3,8	Agreement of European Bank's with the European Union on their recapitalization.	EU	IA	1
31.10.11	Aut	-3,9	Austria's Raiffeisen Zentralbank (RZB) said it will come up by Christmas with a plan to close the capital gap flagged by European banking regulators.	Aut	MP	-1
01.11.11	Italy	-6,8	European stocks decline on Greek Referendum.	Gre	PN	-1

Date	Ctry.	Change	News	Origin from	type	value
01.11.11	Gre	-6,9	European stocks decline on Greek Referendum.	Gre	PN	-1
01.11.11	France	-5,4	European stocks decline on Greek Referendum.	Gre	PN	-1
01.11.11	Ger	-5,0	European stocks decline on Greek Referendum.	Gre	PN	-1
01.11.11	Spain	-4,2	European stocks decline on Greek Referendum.	Gre	PN	-1
01.11.11	Por	-3,7	European stocks decline on Greek Referendum.	Gre	PN	-1
01.11.11	Ire	-4,3	European stocks decline on Greek Referendum.	Gre	PN	-1
21.11.11	Italy	-4,7	U.S. lawmakers may fail to reach an agreement on budget cuts, raising the prospect the world's largest economy could face another credit downgrade.	USA	PN	-1
21.11.11	Aut	-4,8	U.S. lawmakers may fail to reach an agreement on budget cuts, raising the prospect the world's largest economy could face another credit downgrade.	USA	PN	-1
28.11.11	Italy	4,6	EU leaders draft framework for Bailout Fund.	EU	IA	1
28.11.11	Italy	4,6	Europe's rescue fund may insure as much as 30 percent of sovereign bonds.	EU	EN	1
28.11.11	France	5,5	EU leaders draft framework for Bailout Fund.	EU	IA	1
28.11.11	France	5,5	Europe's rescue fund may insure as much as 30 percent of sovereign bonds.	EU	EN	1
28.11.11	Ger	4,6	EU leaders draft framework for Bailout Fund.	EU	IA	1
28.11.11	Ger	4,6	Europe's rescue fund may insure as much as 30 percent of sovereign bonds.	EU	EN	1
28.11.11	Spain	4,6	EU leaders draft framework for Bailout Fund.	EU	IA	1
28.11.11	Spain	4,6	Europe's rescue fund may insure as much as 30 percent of sovereign bonds.	EU	EN	1
28.11.11	Aut	5,0	EU leaders draft framework for Bailout Fund.	EU	IA	1
28.11.11	Aut	5,0	Europe's rescue fund may insure as much as 30 percent of sovereign bonds.	EU	EN	1
28.11.11	Ire	3,6	Europe's rescue fund may insure as much as 30 percent of sovereign bonds.	EU	EN	1
28.11.11	Ire	3,6	EU leaders draft framework for Bailout Fund.	EU	IA	1
30.11.11	Aut	3,8	China cut its reserve ratio for banks.	China	MP	1
30.11.11	Aut	3,8	The euro countries have made the turnout for the leverage of the euro rescue fund EFSF.	EU	IA	1
30.11.11	France	4,2	China cut its reserve ratio for banks.	China	MP	1
30.11.11	France	4,2	The euro countries have made the turnout for the leverage of the euro rescue fund EFSF.	EU	IA	1
30.11.11	Ger	5,0	China cut its reserve ratio for banks.	China	MP	1
30.11.11	Ger	5,0	The euro countries have made the turnout for the leverage of the euro rescue fund EFSF.	EU	IA	1
30.11.11	Italy	4,4	China cut its reserve ratio for banks.	China	MP	1
30.11.11	Italy	4,4	The euro countries have made the turnout for the leverage of the euro rescue fund EFSF.	EU	IA	1
30.11.11	Spain	4,0	China cut its reserve ratio for banks.	China	MP	1

Date	Ctry.	Change	News	Origin from	type	value
30.11.11	Spain	4,0	The euro countries have made the turnout for the leverage of the euro rescue fund EFSF.	EU	IA	1
30.11.11	Por	3,2	China cut its reserve ratio for banks.	China	MP	1
30.11.11	Por	3,2	The euro countries have made the turnout for the leverage of the euro rescue fund EFSF.	EU	IA	1
30.11.11	Ire	4,8	China cut its reserve ratio for banks.	China	MP	1
30.11.11	Ire	4,8	The euro countries have made the turnout for the leverage of the euro rescue fund EFSF.	EU	IA	1

4.2. Analysis: sector of origin

Table 4.2: Origins of Market Turbulences: Sector of Origin

Market Jitters in:	Number of news items of type:					
	Economic News	Political News	International Agreement	Monetary Policy	Credit Ratings	No News
Austria	7	3	6	4	1	3
France	9	3	4	4	3	3
Germany	7	4	7	4	1	2
Greece	6	3	8	1	3	2
Ireland	6	2	5	3	3	6
Italy	7	6	4	4	1	5
Portugal	5	3	4	5	3	3
Spain	6	4	4	6	1	4
Total	53	28	42	31	16	28

Altogether we have collected 198 different pieces of news. Nearly half of all the news is attached to the economic type of news or international agreements. It is more or less intuitive that economic news plays an important role for the stock markets, especially during a crisis – as the markets are already filled with tension. During such a period investors are always seeking for profound economic data to determine their next decisions. Since we are living in a more and more globalized society and particularly the states of the European Union are connected even closer together international agreements (mostly from the European Union itself) also fill out a great amount of the news. Above all there is Greece – the origin country of the crisis – where these international agreements are very important as they are dependent on help from the European Union – which support the Hellenic country with financial aid and also try to condemn the country's budget deficit. As you can see in table 4.2 the second largest number among the news concerning international agreements belongs to Germany as it is the country that contributes the most amount of money to the security funds of the European Union.

Looking at the political news you will find Italy in the leading position with 6 news releases – this is due of the turbulence of the government of Berlusconi which lead to a lot of insecurity in the Italian stock exchange. There were lots of confidence votes during the mid of 2011 where the result for the reigning prime minister was not so clear.

Taking a closer look at monetary policy news you will find Portugal and Spain on the top of the list. This is because the governments of the Iberian Peninsula tried to lower the spread of their bonds with several legal acts. More than a third of all the monetary policy news belongs to these two countries.

One might find it also interesting that the sector of the news concerning rating agencies is taking the last place of all the groups of news as the media is always referring to for example downgradings of a certain country. But the fact is that only the first rating agency that performs such a downgrade has an impact on the stock exchange market. If the other rating agencies perform a downgrade later it is already priced in the market.

4.3. Analysis: country of origin

In table 4.3 we sorted the news by country of origin. At first sight looking at our sample of countries we can see that Greece is by far the country where most of the news originated from. Clearly it is like that because if one is talking about the European debt crisis these days, Greece is the country which you are thinking in the first place speaking about this topic. It is where the crisis has started and the country with the most financial troubles.

The nature of the European Union – connecting all economies of the member states closer together – makes the number of news originated in the European Union with nearly a third of all the news the highest in general. If something is agreed in one of the boards of the Union, investors tend to react accordingly to that news as it can guarantee aid and help or restrict a nation's freedom of action. Another huge amount of news belongs to the two strongest economic powers in the world, the United States and China (29 and 15 news items). Especially in the US the European debt crisis was seen with fear and heavily criticized by its government as they feared a new global recession coming up again affecting America itself too.

News from the smaller countries like Austria or Ireland tended to play a role in the country itself but did not have a large impact on other countries. Usually the economy of smaller countries is strongly connected to neighbor countries as with Austria, whose economy is heavily linked with the German and Italian one.

Broadly speaking, for most of the countries foreign news matter the most (the exception is Greece). The reason for that is that the stock traders took a closer look over their boarders as it was the fear that not only Greece could collapse but also the other weaker states in the European Union like Spain, Italy or Portugal. So a lot of attention was paid to announcements regarding these countries.

Table 4.3: Origins of Market Turbulences: Country of Origin

Market Jitters in:	Number of news items originating in:															
	Aut	Fr	Ger	Gre	Ire	Italy	Por	Spain	Sk	Hung	EU	USA	China	Domestic economy	Foreign economy	Foreign economy*
Austria	2	1	2	1	0	1	1	3	1	1	8	5	1	2	25	17
France	0	3	2	4	0	1	1	1	0	0	9	6	3	3	27	18
Germany	0	3	4	2	0	2	0	1	0	0	10	5	1	4	24	14
Greece	0	0	1	13	0	1	0	0	0	1	6	1	0	13	10	4
Ireland	0	0	1	3	8	0	2	1	0	0	7	2	3	8	19	12
Italy	0	1	2	1	0	4	1	1	0	0	11	4	3	4	24	13
Portugal	0	0	1	4	0	0	6	1	0	0	7	3	2	6	18	11
Spain	0	2	2	2	0	1	3	5	0	0	9	3	2	5	24	15
Total	2	10	15	30	8	10	14	13	1	2	67	29	15	45	171	104
Total**	0	7	11	17	0	6	8	8	-	-	-	-	-			

Note: * foreign economy without the European Union

** total without the own economy

Chapter 5

5.1. Econometric method

The following part of our thesis estimates the effect of the different news types on the stock markets of our eight sample countries. In our analysis we also obtain results when there is no news, i.e. there are moves just because of investors' concerns irrespective of the release of any information. In our regression analysis the variable capturing this is called no news. It can be interpreted as so-called herding behavior. You should also keep in mind that herding behavior can be found if investors over- or underreact to fundamental news. This special type of herding behavior is not the concern of our work.

In our first regression we want to examine whether news releases from different sectors of the economy lead to different impacts on the stock markets. We run regressions of price changes on the dummy variables – which account for each piece of new information. Our regression looks like:

(Regression I) $$R_t^j = \sum_{i=1}^{n} \alpha_i D_t^i + \varepsilon_t^j$$

t = the day of the news release
i = our six previously defined sectors; (e.g. i = 6: sector of no news)
n = amount of our dummy variables, n = 6
R = the percentage change of the stock market index in country j from the market closing in t – 1 to the market closing in t
D = dummy variable related to sector i; (e.g. D^1 = the political news dummy)
α_i = coefficients which show the effect of news releases of the different sectors on the stocks market
ε = standard error

All the results (table 5.1 – first column) we obtain are significantly different from zero. Our total number of observations is 160 and the R-squared lies near to the value of 1[39].

In our second regression we want to see if the different types of news show any difference if their nature is bad or good. To run our regression, we separate every dummy variable accordingly to a good and a bad one. For example the dummy variable pn for political news is divided into pn_good (if news generated political stability) and pn_bad (if the opposite case occurs). All the other new dummies are created similarly. We run the following regression:

(Regression II) $$R_t^j = \sum_{i'=1}^{n'} \alpha_{i'} D_t^{i'} + \varepsilon_t^j$$

i´ = our eleven previously defined good and bad sectors; (e.g. i = 1: sector of good political news)
n´ = amount of our dummy variables, n´ = 11
D = dummy variable related to sector i´; (e.g. D^1 = the good political news dummy)
$\alpha_{i'}$ = coefficients which show the effect of news releases of the different sectors on the stocks market

The results are shown in table 5.1 – second column. As in the previous regression all coefficients from the dummy variables are significantly different from zero and also the R-squared is near the value of one.
For all good news the coefficient is positive respectively negative for bad news. So in general after a good (bad) news is released the reaction of the stocks market is usually positive (negative).

In our next regression we want to see if the origin of the news does matter. The process of creating our new dummy variables for this regression is quite similar to the good and bad news variables but in this case we are dividing our general dummies into foreign and domestic dummies. As an example we take the political news

[39] For a more detailed analysis of the coefficients see the next sections

dummy and implement two new dummies looking if the news release is from foreign (pn_foreign) or domestic (pn_domestic) origin. The regression that we are running looks like this:

(Regression III) $$R_t^j = \sum_{i''=1}^{n''} \alpha_{i''} D_t^{i''} + \varepsilon_t^j$$

i´´ = our twelve previously defined foreign and domestic sectors; (e.g. i´´ = 1: sector of domestic political news)
n´´ = amount of our dummy variables, n´´ = 12
D = dummy variable related to sector i´´; (e.g. D^1 = the domestic political news dummy)
$\alpha_{i''}$ = coefficients which show the effect of news releases of the different sectors on the stocks market

Our results are shown at table 5.1 – third column. The R–squared is again around 0.8 and all coefficients are significantly different from zero.[40]

In the final regression we separated the origin of the news into crisis- and non–crisis countries. As crisis countries we used the so called PIIGS, which are Portugal, Ireland, Italy, Greece and Spain. The procedure is likewise to the foreign and domestic problem of regression III but this time we separate it into PIIGS countries and non PIIGS countries. The regression looks as follows:

(Regression IV) $$R_t^j = \sum_{i'''=1}^{n'''} \alpha_{i'''} D_t^{i'''} + \varepsilon_t^j$$

i´´´ = our twelve previously defined PIIGS and non PIIGS sectors; (e.g. i´´ = 1: sector of PIIGS political news)
n´´´ = amount of our dummy variables, n´´´ = 12

[40] For a more detailed analysis of the coefficients see the next sections

D = dummy variable related to sector i´´´; (e.g. D^1 = the PIIGS political news dummy)
$\alpha_{i´´}$ = coefficients which show the effect of news releases of the different sectors on the stocks market

The results that we are getting are shown in the last column of table 5.1. All coefficients are significantly different from zero and the R-squared again lies around 0.8.

Furthermore for a detailed look if the coefficients are significantly different to each other take a look at appendix B – there will you find all the exact data for it.

Table 5.1: Regression Analysis

	Dependent Variables							
	Percent Change in Stock Market Prices	Percent Change in Stock Market Prices		Percent Change in Stock Market Prices		Percent Change in Stock Market Prices	
	OLS	OLS		OLS		OLS	
Explanatory Variables	*Regression I*	Regression II		*Regression III*		*Regression IV*	
		Good News	Bad News	Domestic	Foreign	PIIGS	No PIIGS
Constant	-0,35 (-1,47)	1,59 (1,55)		-0,47 (-1,49)		-0,49 (-1,63)	
Political News	4,52 *** (20,34)	2,73 *** (2,61)	-6,57 *** (-6,24)	5,11 *** (16,21)	4,39 *** (19,29)	4,17 *** (9,66)	4,34 *** (26,63)
Economic News	4,12 *** (10,09)	2,29 *** (2,89)	-6,13 *** (-5,41)	2,84 *** (3,13)	4,48 *** (7,23)	3,81 *** (3,10)	4,42 *** (11,91)
Monetary Policy	2,94 *** (5,66)	2,17 *** (3,31)	-4,67 *** (-2,25)	3,70 *** (5,81)	1,59 *** (1,99)	2,35 *** (2,85)	2,78 *** (4,32)
International Agreements	4,16 *** (9,68)	2,81 *** (2,95)	-6,19 *** (-4,83)	4,67 *** (8,19)	4,06 *** (13,32)	4,92 *** (8,10)	4,35 *** (9,47)
Credit Ratings	3,93 *** (7,62)	3,98 *** (3,88)	-5,47 *** (-4,03)	3,01 *** (2,99)	4,18 *** (9,38)	3,92 *** (6,28)	3,74 *** (4,97)
No News	-3,79 *** (-6,94)	-5,74 *** (-5,02)		-3,63 *** (-5,43)	-3,91 *** (-11,30)	-2,61 *** (-2,84)	-3,51 *** (-4,49)
Number of Observations	160	160		160		160	
R-Squared	0,825	0,837		0,805		0,801	

Notes: ***, **, and * indicates statistical significance of 1, 5, and 10 respectively.
T-statistics in parentheses

5.2. What triggers market jitters?

All the coefficients in table 5.1 of regression I are – except for no news – positive, which is our expected outcome. It means that a news release causes a reaction accordingly to its nature.[41] For the no news the dummy is negative because we did not include a negative dummy variable as you cannot categorize a day with no apparent news (the variable only takes on the value zero or one and not -1)[42].

The largest effect on the stock markets can be seen following political news which impacts on average by 4.5 percent. Great attention was always drawn to the political reaction of Greece if the government is implementing a stricter control, new taxes and also of how the politicians in the rest of the European Union support the aid for the weaker countries. Also the situation of Italy, where the populist Prime Minister Silvio Berlusconi with his confidence votes, contributed to instability at the stocks markets. In general you could say that political stability is very important especially during times of crisis.

Also international agreements have a big impact on the reaction of stock markets. If a country is granted help with its financial problems the markets are stimulated positively, also vice versa. In the case for Greece this financial help saved the country from bankruptcy.

In the media you might get the impression that the credit rating agencies should contribute to larger swings than with a coefficient of 3.9 percent. The reason that news regarding credit rating agencies has on average this low effect on the stock markets might be that a lot of time such downgrades or upgrades don't come as a surprise. Many times the market has already priced in to some extent the possibility of a new rating of a country.

The lowest swings are induced by news regarding monetary policy[43]. The coefficient of that dummy is roughly under 3. So there are mostly news items about buying bonds of risky countries and it was demanded by the economy (mostly banks) to stabilize and lower the spread of the interest rate a country is paying. But the effect of these actions does not show a high reaction on the stock indices.

For the no news coefficient the value is -3.8 so on average days with no news are negative. Meaning people during a crisis tend to follow negative rumors more than

[41] A negative news leads to a market downturn and a positive one to a market rally.
[42] A more detailed analysis about the no news coefficient is given a few lines later
[43] It is significantly different from the other coefficients at a 90% level – see also for that appendix B

positive ones. It shows that the market is quite nervous and that the belief in it is not very strong.

5.3. Is there a difference between good or bad news?

The second column of table 5.1 indicates that in general the release of bad news[44] leads to higher swings in the stock exchange markets. This may be because during a crisis bad news lead to a rise in uncertainty whereas good news doesn't seem to lift investor's spirits.

Clearly the highest impact of good news occurs for news regarding credit ratings. During the European debt crisis if a rating agency upgraded or stated a positive outlook for a country, it was always a great sign and was an indication that the crisis will come to an end and that the economy is starting to get healthy again. In terms of bad news a large role was played by political news. Troubles of the Greece government at the end of October as well as the situation in Italy were responsible for creating political instability. As seen in the case of former Greek Prime Minister Papandreou when he showed weakness at the end of October 2011 (as he wanted to make a referendum about the European austerity package, then he pulled back his decision and in the end he announced his resignation) for the European stock markets it is important that leaders show that they are capable of handling difficult situations. Politicians should pay extremely close attention to what they are doing as well what they are saying. They are in the focus of the media and also investors are watching the steps that they are taking to overcome the crisis.

A big influence of bad news is also news regarding economic information. This finding is consistent with the findings of John H. Boyd, Javi Ragannathan and Jian Hu[45] who find that during times of contraction, bad news regarding unemployment or bad growth expectations lead to a significant fall in bond prices.

As seen in the previous column news regarding monetary policy also has the smallest effect in this column.

[44] See the significance test at appendix B

[45] Boyd John H., Hu Jian, Tagannathan Javi, (2001). The stock market's reaction to unemployment news: Why bad news is usually good for stocks

5.4. Does the origin of the news matter?

One would think that news originating in the own country would have more impact than foreign news but testing their significance leads to an ambiguous result. With the exception of monetary policy, political news and economic news, the origin of news does not matter as they are not significantly different[46].

What is interesting in this table is that economic news has a greater impact if they are of foreign origin. It shows that the economies of the European Union are connected already very closely together and that more weight – especially in the countries with a smaller economy – is given to economic news published in especially the big economic players like Germany, USA or China (which are the most important countries for a lot of the economies in the Eurozone acting as their main trading partners).

Domestic political news plays a greater role than foreign ones since high interest is drawn on how politicians react to the situation the crisis has brought – a balancing act to cut spending but also stimulate the own economy. The role of politicians for the own market is higher than for other markets as they always try to satisfy the voters in their country first.

If we take a closer look at the coefficients on the news variables regarding credit rating agencies you see that the cr_domestic is not significantly different from cr_foreign. This indicates that spill–over effects take place when a new rating of an agency comes out. If for example Greece gets downgraded then accordingly for example the stock exchange markets of Madrid or Lisbon also go down. So in the case for credit rating news you see that contagion effects are happening.

For rumors you can see that the values of the coefficients are very similar so it does not really matter if a rumor is originated in a foreign or a domestic market.

[46] See again appendix B

5.4.1. Is it different if the news originated in the PIIGS[47] countries?

In this section we will check if there is a difference if the news are originated in the crisis countries. In the media these countries got the name PIIGS from the first letter of Portugal, Ireland, Italy, Greece and Spain. Performing a regression on these data you see the results in the fourth column of table 5.1. As you can see the coefficients of the news variables originating in the PIIGS countries and those originating outside are pretty similar. Testing if they are significantly different from each other leads to the result that they are not. So it does not really matter if the news were released in one of the crisis countries or not, which also indicates that the contagion effects in the European Union are pretty strong.

5.5. Are market jitters persistent?

In this section our focus will be to check if the market jitters that we have found are persistent. Clearly it is important to know if the reaction of the stock market to news is just a reaction on one day or if the new information still has an influence over a longer period. To do so we calculate the normal returns of each event. In our definition we estimate the normal returns by calculating out the main daily return over the ten trading days before a news release:

$$\mu_t = \frac{\sum_{l=1}^{10} R_{t-l}}{10}$$

μ = normal return
t = date of the event
l = 10 = time period before the event
R = returns on a certain day

Then we compare it with the normal returns 10 days after a news release. So we are using a 21 day time window in which we are going to check if in the last 10 days the

[47] This term is used for the countries Portugal, Ireland, Italy, Greece and Spain – referring to the similar problems and economic situation of these countries.

stock index still is up or down. The results (in percent) of the days where the stock markets are persistent, looking at the different types of news are shown in table 5.2.

Table 5.2: Proportion of Days with Persistent Market Jitters - Type

News of Type	Market Rallies	Market Downturns
Political News	0,62 *** (4,74)	0,73 *** (6,20)
Economical News	0,9 *** (11,05)	0,27 *** (2,31)
International Agreements	0,51 *** (3,90)	0,33 (2,23)
Monetary Policy	0,71 *** (5,94)	0,3 ** (2,67)
Credit Ratings	1 (1) NA	0,2 * (1,87)

Notes: ***, **, and * indicates statistical significance of 1, 5, and 10 respectively

With the exception of international agreements market rally news tends to have a high degree of persistence. It is clear that economic news are greatly persistent during times of crisis as it shows that the economy is going to go up again. Regarding market downturns only the political news are persistent over 10 days. This shows how important it would be to have a stable government or a sound political environment during a crisis.

What we also did is doing the same procedure looking at the origin of the news. Our results are shown at table 5.3.

Table 5.3: Proportion of Days with Persistent Market Jitters – Origin

News of Type	Market Rallies	Market Downturns
Political News	0,62 *** (4,74)	0,73 *** (6,20)
Economical News	0,9 *** (11,05)	0,27 *** (2,31)
International Agreements	0,51 *** (3,90)	0,33 (2,23)
Monetary Policy	0,71 *** (5,94)	0,3 ** (2,67)
Credit Ratings	1 (1) NA	0,2 * (1,87)

Notes: ***, **, and * indicates statistical significance of 1, 5, and 10 respectively

Again you can see that it does not really matter where news of market rallies come from. With the exception of Germany good news is still persistent. Interestingly market downturns are persistent if the news originated in Germany as it is the biggest economy in the European Union.

In general you can say that during this European debt crisis good news is persistent as it shows fundamentally that the downturn could be over soon. On the other hand downturns do not tend to be persistent as during a crisis markets tend to overreact on bad news and on the following days when it is looked at the situation more unemotionally the market is correcting its reaction.

Chapter 6

6.1. Conclusion

This paper tries to give an overview of how the stock markets in Europe behaved during the crisis from 2010 to the end of November 2011. We have looked at how the variance changes during a crisis period and analyzed the situation in the different countries. In the strong economies that have a nearly equally balanced household – like Germany – they were not strongly affected at the beginning of the crisis. As the crisis deepened also the stock market in Germany – the DAX – started to increase its volatility.

Also we gave a short overview of how the situations of the countries are during this crisis and the different positions regarding their budget deficit, debt level and economic growth. From this we can say that the general problem is the high budget deficit, but that every state had to face other problems related to how the crisis began in their country (e.g. Spain had the housing boom, Ireland the banking crisis).

We also showed that Greece – the center of the crisis – had contagious effects on the other stock exchanges in Europe. The fear was that the near bankruptcy of Greece could be a role model for the other weaker economies of Europe like Portugal, Spain or France. So investors paid great attention to news published in this country. But the swings could not only be explained by just fundamental news data, we also showed that during a crisis concerns and rumors had a huge impact on stock markets.

During the European sovereign debt crisis the news that affected the markets to a great extent where political ones. It is important that countries, especially during insecure times, have a secure political situation and a good leadership. Clearly you can see in the chaotic situations of Greece, Italy or Spain that the stock markets reacted very strongly to politicians that did not seem to have a concept on how to fight this crisis. Also, in the case of strong leadership like in Germany or after the resignation of Silvio Berlusconi in Italy, the markets found their confidence again and the stocks acted accordingly.

In the public discussion the predominant opinion is that the rating agencies are responsible for a lot of the turbulences at the stock exchanges. But we showed that news regarding downgrades or upgrades of a country do not have that strong influence.

What we also did is to look at the reaction if new information is positive or negative. We showed that higher swings were caused by negative news. You can say that during a crisis bad news enforces uncertainty among the investors and set back their hopes of an upswing.

Looking at the persistence of market rallies or downturns investors tend to keep buying at the stocks markets after positive news. They want to get advantage of the positive mood that is present whereas during market rallies they do not continue to sell the fallen stocks. Usually it is just a short (and heavy) downside reaction of the market but then investors think about it objectively and start buying the cheaper stocks again.

All of these conclusions are valid during a crisis episode and showed which types of news were the most responsible for large stock market swings. Doing this analysis showed that investors give more weight to certain information than others, which one might not have thought of (like the low influence of credit rating agencies).

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Appendix A

Daily Returns (in Percent) in days of market jitters

Date	Aut	France	Ger	Gre	Ire	Italy	Por	Spain
12.01.10	-1,11	-1,06	-1,61	**-5,00**	-1,47	-0,81	-1,00	-0,90
04.02.10	-2,49	-2,75	-2,45	-3,33	-2,44	-3,45	**-4,98**	**-5,94**
09.02.10	0,29	0,15	0,24	**4,96**	-0,83	-0,57	0,83	0,68
26.04.10	0,99	1,17	1,16	-2,86	1,06	0,25	**-3,17**	0,19
27.04.10	-2,07	**-3,82**	-2,73	**-6,00**	**-4,48**	-3,28	**-5,36**	**-4,19**
29.04.10	0,50	1,42	1,00	**7,14**	**3,53**	0,90	**4,59**	2,69
04.05.10	**-4,04**	-3,64	-2,60	**-6,68**	**-4,19**	**-4,70**	**-4,21**	**-5,41**
06.05.10	-3,50	-2,20	-0,84	0,98	-2,43	**-4,27**	-2,37	-2,93
07.05.10	-3,33	**-4,60**	-3,27	-2,86	**-4,10**	-3,27	-2,94	-3,28
10.05.10	**9,10**	**9,66**	**5,30**	**9,13**	**7,86**	**11,30**	**10,73**	**14,43**
14.05.10	-2,95	**-4,59**	-3,12	-3,41	**-4,25**	**-5,26**	**-4,27**	**-6,64**
19.05.10	-2,21	-2,92	-2,72	0,44	**-4,17**	-3,45	-1,92	-2,61
25.05.10	**-4,36**	-2,90	-2,34	-3,46	**-4,36**	-3,40	-2,75	-3,05
26.05.10	2,00	2,32	1,55	2,98	**3,70**	2,15	**3,19**	0,42
27.05.10	3,55	3,42	3,11	-0,46	**3,87**	**4,54**	**3,57**	3,23
04.06.10	**-4,12**	-2,86	-1,91	**-5,03**	-1,69	-3,79	-2,20	-3,80
07.06.10	-1,42	-1,21	-0,57	**-5,45**	N/A	-0,55	-0,39	-1,44
11.06.10	1,04	1,11	-0,14	0,52	**-0,73**	1,39	0,79	**3,95**
29.06.10	-3,18	**-4,01**	-3,33	-0,88	**-3,78**	**-4,44**	-2,67	**-5,45**
24.08.10	-1,65	-1,75	-1,26	-3,42	**-5,78**	-1,58	-0,73	-1,65
01.09.10	2,47	**3,81**	2,68	1,01	2,10	3,22	0,91	3,51
01.12.10	**3,74**	1,63	2,66	3,85	1,84	2,41	2,97	**4,44**
12.01.11	1,42	2,15	1,83	**5,02**	0,96	3,82	2,59	**5,42**
14.03.11	-1,41	-1,29	-1,65	**5,15**	-0,85	-0,27	0,88	0,17
31.05.11	1,31	1,63	1,86	**5,58**	0,45	1,53	-0,20	2,13
30.06.11	1,54	1,48	1,13	1,12	0,38	1,62	**3,03**	2,13
06.07.11	-0,87	-0,44	-0,11	-1,75	-1,44	-2,44	**-3,03**	-1,22
11.07.11	-2,61	-2,71	-2,33	-2,58	-1,47	-3,96	**-4,28**	-2,69
22.07.11	0,09	0,68	**3,73**	**5,91**	1,42	-0,15	1,47	0,42
04.08.11	-3,49	**-3,90**	**-3,40**	-1,35	**-3,55**	**-5,16**	**-3,26**	-3,89
08.08.11	**-6,11**	**-4,68**	**-5,02**	**-6,00**	**-4,42**	-2,35	**-3,13**	-2,44
10.08.11	-2,18	**-5,45**	**-5,13**	-1,80	-2,29	**-6,65**	-1,25	**-5,49**
11.08.11	2,78	2,89	3,28	-0,60	1,63	**4,10**	1,72	3,56
12.08.11	**3,80**	**4,02**	**3,45**	1,53	2,91	4,00	3,02	**4,82**
18.08.11	**-5,24**	**-5,48**	**-5,82**	-3,38	**-4,35**	**-6,15**	**-4,12**	**-4,70**
29.08.11	2,33	2,16	2,39	**14,37**	1,71	2,30	2,56	2,56
30.08.11	0,59	0,18	-0,46	**-4,82**	0,57	-0,23	-0,12	0,59
31.08.11	3,32	3,07	2,50	-4,40	**3,67**	3,02	2,38	3,24
02.09.11	-3,00	-3,59	**-3,36**	-3,98	-3,10	-3,89	0,52	-3,40

Date	Aut	France	Ger	Gre	Ire	Italy	Por	Spain
05.09.11	**-4,30**	**-4,73**	**-5,27**	-3,14	-3,46	**-4,83**	-2,82	**-4,69**
07.09.11	2,36	3,63	**4,07**	**7,98**	2,92	**4,24**	2,16	2,77
09.09.11	**-5,41**	-3,60	**-4,04**	-0,00	-3,17	**-4,93**	-2,50	**-4,44**
12.09.11	**-3,78**	**-4,03**	-2,27	-4,43	-2,54	-3,89	**-4,19**	-3,41
14.09.11	0,34	1,87	**3,36**	1,67	2,06	2,69	1,39	2,70
15.09.11	2,49	3,27	3,15	-1,02	-0,15	3,55	**3,10**	3,63
22.09.11	**-6,09**	**-5,25**	**-4,96**	-3,03	-3,21	**-4,52**	**-5,22**	**-4,62**
27.09.11	**5,66**	**5,74**	**5,29**	0,83	3,24	**4,90**	2,99	**4,03**
04.10.11	-2,66	-2,61	-2,98	**-6,28**	-3,50	-2,72	-2,18	-1,54
05.10.11	**5,72**	**4,33**	**4,91**	0,71	2,09	3,94	2,86	3,06
12.10.11	**4,17**	2,42	2,21	4,75	1,89	2,93	2,28	2,05
21.10.11	2,95	2,83	**3,55**	**5,33**	1,17	2,80	1,37	2,84
27.10.11	**5,82**	**6,28**	**5,35**	**4,82**	**3,76**	**5,49**	2,61	**4,96**
31.10.11	**-3,95**	-3,16	-3,23	-0,31	-1,13	-3,82	-1,27	-2,92
01.11.11	N/A	**-5,38**	**-5,00**	**-6,92**	**-4,27**	**-6,80**	**-3,68**	**-4,19**
21.11.11	**-4,76**	-3,41	-3,35	-3,74	-2,00	**-4,74**	-2,08	-3,48
28.11.11	**4,96**	**5,46**	**4,60**	0,41	**3,55**	**4,60**	2,83	**4,59**
30.11.11	**3,81**	**4,22**	**4,98**	2,44	**4,78**	**4,38**	**3,22**	**3,96**

Notes: bold numbers identify market jitters

Appendix B

Significance Test

Regression I

	Political News	Economic News	Monetary Policy	International Agreement	Credit Rating	No News
Political News	-	0,3778	0.0063***	0,4726	0,2843	0,0000***
Economic News	0,3778	-	0,0825**	0,9598	0,714	0,0000***
Monetary Policy	0.0063***	0,0825**	-	0,0736*	0,1916	0,0000***
International Agreement	0,4726	0,9598	0,0736*	-	0,7567	0,0000***
Credit Rating	0,2843	0,714	0,1916	0,7567	-	0,0000***
No News	0,0000***	0,0000***	0,0000***	0,0000***	0,0000***	-

Notes: ***, **, and * indicates statistical significance of 1, 5, and 10 respectively

Regression II

pn_bad - pn_good = 0	0,0000***
en_bad - en_good = 0	0,0000***
mp_bad - mp_good = 0	0,0006***
ia_bad - ia_good = 0	0,0000***
cr_bad - cr_good = 0	0,0000***

Notes: ***, **, and * indicates statistical significance of 1, 5, and 10 respectively

Regression III

pn_domestic - pn_foreign = 0	0.0639*
en_domestic - en_foreign = 0	0.0987*
mp_domestic - mp_foreign = 0	0.0384**
ia_domestic - ia_foreign = 0	0,2779
cr_domestic - cr_foreign = 0	0,2562
nn_domestic - nn_foreign = 0	0,7042

Notes: ***, **, and * indicates statistical significance of 1, 5, and 10 respectively

Regression IV

pn_PIIGS - pn_nocrisis = 0	0,7053
en_PIIGS - en_nocrisis = 0	0,6155
mp_PIIGS - mp_nocrisis = 0	0,6715
ia_PIIGS - ia_nocrisis = 0	0,4106
cr_PIIGS - cr_nocrisis = 0	0,8496
nn_PIIGS - nn_nocrisis = 0	0,4386

Notes: ***, **, and * indicates statistical significance of 1, 5, and 10 respectively

Curriculum Vitae

Contact

Sebastien Hässlich

Hackinger Str. 42-44/2/20
1140 Wien
Austria

Phone: +43 (0)699 11115253

Email: s.haesslich@yahoo.de

Personal Details

Date of Birth:	23 November 1984
Nationality:	German, French and Italian

Education

1999 – 2004	High School at „Lyceum Alpinum Zuoz“ in Switzerland
Since 2005	Diploma Studies in Economics, University of Vienna
2009 – 2010	Exchange Semester at the Université Dauphine in Paris

Working Experience

2005	Tourism Internship at the Hotel Florence in Bellagio (Italy)
2008 – 2009	Private Extra Lessons in Mathematics for Secondary School in Vienna
2011 – 2012	Assistant at Probaufinanz GmbH in Munich

Language Skills

Italian	Mother Tongue
German	Fluent
French	Fluent
English	Fluent
Slovak	Basic Knowledge

Curriculum Vitae

Contact

Alois Engl

Moserbachstr. 51
4614 Marchtrenk
Austria

Phone: +43 (0)699 11115253

Email: alois.engl@gmail.com

Personal Details

Date of Birth:	29th October 1984
Nationality:	Austria

Education

June 2004	Matura at the BG/BRG Dr. Schauerstrasse Wels
Since 2005	Diploma Studies in Economics, University of Vienna
2008 – 2009	Exchange Semester at the Thammasat University in Bangkok
2011	Summerschool at the Economic University of Wroclaw (Poland)

Additional qualification

2009 – 2010	Head of Organisation of the Formula Student Racing Team Vienna
May 2009	Seminar of Product Management at Audi AG in Györ, Hungary
January 2010	Presentation about the TU Wien Racing Team at the Technical University of Györ

Language Skills

German	Mother Tongue
English	Fluent
Spanish	Advanced Knowledge
Russian	Basic Knowledge
Thai	Basic Knowledge